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THE FUNGUS GNATS OF NORTH AMERICA.

Part 1.

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BULLETIN No. 172.

THE MYCETOPHILIDÆ OF NORTH AMERICA.

PART I.*

O. A. JOHANNSEN.

It is the purpose of this paper to present a synopsis of the fungus gnats or *Mycetophilidæ* of North America, giving descriptions of and tables to all the genera and species, and life histories when known. As these flies are for the most part quite small, inconspicuous in coloring and retiring in habit, it is not strange that they, with the exception of a few species which have been brought into prominence by reason of their economic importance, have received but scant attention from entomologists generally. In this, the first part, the lower and economically less important subfamilies are treated, while in a subsequent paper the *Sciophilinæ, Mycetophilinæ* and the *Sciarinæ* will be considered. I hope to be able to show, in my work on the *Sciarinæ,* just what relation the larvæ of *Sciara* which are so frequently and usually so numerously present in rich soil, bear to the plants which grow there. I also trust that the descriptions of the imagines of the members of this genus will be sufficiently characteristic so that neither the Economic Entomologist nor the Systematist need so often designate a species as *Sciara sp.* as has been the case heretofore.

Acknowledgments.

To the members of the Entomological Staff of Cornell University for their kindness in granting me the freedom of their laboratories, library, and collections I wish to express my

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heartiest thanks. I am also under great obligations to Professors W. M. Wheeler, J. M. Aldrich, John Barlow, and Messrs. Wm. Beutenmueller and C. W. Johnson for the loan of their collections, to Mr. D. W. Coquillett in permitting me to study the specimens in the United States National Museum and to Dr. Samuel Henshaw for the privilege of examining the Loew types in the museum at Cambridge, Mass. I desire also to acknowledge my indebtedness to Miss Edith M. Patch of the Agricultural Experiment Station of Maine, and to Dr. Chas. D. Woods, director of the station, for encouragement and aid in making possible the publication of this paper in its present form.

Of the literature upon the Mycetophilidæ which has been of greatest assistance I need only mention here Winnertz's "Pilzmücken," the "Centuries" of Loew from the Berliner Entomologische Zeitschrift, and the papers of Adams, Aldrich, Coquillett, Dziedzicki, Grzegorzek, Lundström, Marshall, Rübsaamen, Skuse and Williston.

Characters.

The fungus-gnats are flies of medium or small size, and more or less mosquito-like in form. They are exceedingly numerous both in number of individuals and in number of species, over fifteen hundred species contained in upward of one hundred genera, having been described from Europe, North America and Australia. Although entomologists have long been familiar with the earlier stages as well as with the adults of several members of this family, our knowledge of the life history is as yet very meagre. In 1864 Baron C. R. von Osten Sacken collected all the published records bearing upon the biology and the structural characters of the larvæ and published them together with some observations of his own. This paper was reprinted in 1884 with a few additions.

The larva is twelve segmented, footless, more or less cylindrical, slightly tapering, smooth, soft, whitish in color and with a small strongly chitinized head, which is usually brown or black. The antennæ are always very minute, almost vestigial. The mouth parts consist of a fleshy labrum, with a chitinized frame; flat lamelliform mandibles, indented or serrate on the

inner side; maxillæ with inner and outer lobes, the former usually serrate; and a small chitinized labium. The body of the larva is without hair or bristles except that in some genera there are two transverse rows of simple or bifid ambulacral setulæ on the margin of each abdominal segment on the ventral side. There are usually eight pairs of spiracles, which in some of the genera at least, are protected by small chitinized conical projections, the anterior pair being largest.

The pupæ are extricated, that is, not encased in the contracted skin of the larva. The legs are applied to the breast and venter, the antennæ are bent around the eyes, and extend between the wings and legs. The prothoracic spiracle is placed a little above the root of the wing and immediately behind the antenna. The abdominal spiracles are distinct on both sides of the abdomen. The pupa is smooth, white in color and frequently encased in a delicate cocoon. The pupæ of those forms whose larvæ live in mushrooms are usually found in the soil and among the decaying parts of the plant. The larval and usually the pupal life also is of short duration, though the insect may hibernate as a pupa. The time which elapses from the egg to the adult stage may not exceed two weeks in midsummer.

The imago may be distinguished from other flies by the following characters: Antennæ usually 16 jointed, occasionally 12 to 17 jointed; palpi usually 3 or 4 jointed; ocelli present except in one or two genera. Thorax highly arched, scutellum small, setose. Abdomen with 6 to 9 visible segments, cylindrical, conical or oval and laterally compressed; the male with complex hypopygium, the female with a short ovipositor with 2 terminal lamellæ. In the male the seventh and eighth segments are usually very small. The coxæ are very strong and excepting in the *Sciarinæ* and a few of the lower genera, are much elongated; the femora are more or less thickened, laterally compressed, often setose; the tibiæ usually slender, spurred, and setose; tarsal claws with teeth. The wings are usually oval, hairy or microscopically setulose, and without the cell 1st M_2 (discal cell). The wing venation is quite varied though it may readily be reduced to four types. The first and most primitive is that of *Palæoplatyura* (fig. 70); in the second, *Ceroplatinæ, Macrocerinæ, Ditomyia* (fig. 71) the basal section

of the media is lost; in the third, *Sciophilinæ* (fig. 72) the M-Cu cross vein is wanting and R_{2+3} is crossvein-like in appearance; while in the fourth, *Mycetophilinæ* (fig. 73) and *Sciarinæ*, both the M-Cu crossvein and the vein R_{2+3} have disappeared either by coalescence or atrophy.

Below is given the Comstock-Needham terminology of wing venation which is used in the following text, together with the equivalent terms of the Schinerian system.

Costa (C)		= Costa.
Subcosta (Sc)	Sc_1	= Subcostal or auxiliary vein.
	Sc_2	= Subcostal crossvein.
Radius	..... R_1	= First longitudinal vein.
	Radial sector R_{2+3}	= Anterior branch of third vein.
	Radial sector R_{4+5}	= Posterior branch of third vein.
Media (M)		= Fourth longitudinal vein.
Cubitus (Cu)		= Fifth longitudinal vein.
Anal veins (A)		= Anal and axillary veins.

Crossveins

Subcostal (Sc_2)	= Subcostal.
Radio-medial (R-M)	= Anterior crossvein.
Medio-cubital (M-Cu)	= Posterior crossvein.

In this system each cell is given the name of the section of the vein immediately in front of it; thus the cell behind the costa is called the costal cell (or C); the cell behind the basal section of the radius is called R, that behind R_1 is called R_1, etc. In the case of *Sciophilinæ* where R_{2+3} is transverse in position, the small cell is called R_1 and the outer cell is R_{2+3}. Some writers, Winnertz among others, have erroneously considered the base of the radial sector as a crossvein, while they called the true crossvein the base of the third longitudinal vein (R_{4+5}).

In the past the characters most used for generic classification have been derived from the wing venation while color characters have been most used in describing species. In the

future more attention should be paid to the structure of the palpi and antennæ, position of ocelli, arrangement of setæ on thorax and legs, relative wing and leg measurements, claws in some cases, and especially to the hypopygium of the male, for both generic and specific characters. The descriptive works of Dziedzicki, Lundström and Rübsaamen, are particularly excellent in regard to the last. For a proper study of the members of the *Mycetophilidæ* it is absolutely necessary to make a caustic potash preparation of the hypopygium. It is impossible from a pinned specimen to determine the form of the parts, owing to the fact that they are usually more or less retracted. I have found Lundström's method of preparation simpler than that of Dziedzicki. In this method it is merely necessary to relax the insect, cut off with a pair of scissors the apical segments of the abdomen; immerse in a 10 per cent solution of caustic potash for twenty-four or more hours, soak in water to remove the potash, and finally preserve in alcohol in a tiny vial bearing the number of the specimen. Besides its simplicity this method offers a further advantage in that the abdominal segment which still is attached to the hypopygium offers a hold for the needles in manipulating and arranging the part under the binocular dissecting microscope. Slide mounts alone are not desirable since it is necessary to be able to turn the object in order to see it from all sides.

The general shape of the hypopygium is that of a cup opening posteriorly, the cavity of which is the genital chamber. This cup, which is formed of the sclerites of the ninth segment, is so produced that its margin usually extends beyond the tenth segment which morphologically terminates the abdomen. The tenth segment bears the anus and is usually reduced to a small membranous lobe. Attached to the posterior rim of the hypopygium are several lobe-like appendages which are variously formed or modified. The body of the segment is made up of a dorsal, ventral and two lateral sclerites. From the floor of the genital chamber arises the penis with its variously modified guards. Although several hundred preparations have been made, owing to the complexity of structure I am not yet certain of the homologies of the parts of some of the genera and pending this investigation I must be content in the descriptive work which follows to confine myself to noncommittal

terms in the designation of the various appendages. Following Dziedzicki and Lundström I shall call the upper and lower lateral appendages respectively the upper and lower forceps; when the homology seems evident I shall use the terms eighth and ninth tergum and sternum as given by Snodgrass ('04), otherwise shall speak of these appendages as the dorsal and ventral sclerites. Sometimes when one or the other of the lateral appendages are wanting or greatly reduced the remaining pair will be simply designated as the forceps. When there are appendages of sternum and tergum which require designation they will be called respectively sternal and tergal processes or lobes.

Habits and Economic Relations.

As far as known most of the members of this family live upon and destroy mushrooms, not only the wild plants but on occasion the cultivated varieties as well. Many a mushroom though apparently sound, will, upon close scrutiny reveal tiny black headed larvæ which within a few days grow to maturity and if numerous completely riddle the plant. If left upon the earth the larvæ when full grown will bury themselves, pupate, and within a short time emerge as adults. While but few references to the higher fungus gnats (*Mycetophilinæ*) are found in economic literature, nevertheless I may say from personal observation that a large percentage of the wild mushrooms are infested with the larvæ of *Mycetophilinæ*, particularly of the genera *Exechia* and *Mycetophila*, and in several instances have found them in company with the larvæ of *Phora* to utterly ruin a mushroom bed in the cellar of a grower.

The larvæ of *Mycetobia* live upon decaying wood, particularly of the apple or peach tree, though probably without injury to the sound wood. The *Ceroplatinæ* and *Sciophilinæ* as far as known live upon fungi and decaying wood. As they are comparatively rare they are not likely to be of economic importance. The *Sciarinæ* on the other hand are frequently mentioned by economic entomologists. Though often found in decaying mushrooms and in the earth in putrid vegetable matter I have never found them to be injurious to growing fungi. They are frequently present, feeding on potatoes affected by scab or rot, in some apparently well authenticated instances

appear to be the precursor of some form of scab. They are found in apples associated with the railroad worm; in bulbs of tulips, and are occasionally reported by florists as damaging plant roots. Professor Forbes in the 18th report of the State Entomologist of Illinois states that they are frequently noticed in rich garden ground and among potted plants, where they are accused by gardeners of eating the roots and hollowing out the bulbs. He also says "When the spring is cool and wet after corn planting, so that the softened seed lies long in the ground without sprouting, this is especially liable to certain kinds of injury; and it is under these conditions that the black headed maggot (*Sciara sp*) seems most likely to affect it injuriously. Rotting grain is, indeed undoubtedly preferred by this insect, but it has occasionally been seen to infest kernels which had begun to grow. It lives normally in old sod, feeding chiefly, or perhaps altogether, on decaying vegetation there, and will be found in noticeable numbers in corn fields only where the field was in grass the preceding year. These maggots penetrate and hollow out the kernel, often leaving nothing more than an empty hull. A score or more of them may infest a single grain."

Lintner in his 10th report of the State Entomologist of New York says "A species (perhaps more than one) is noted in Europe, for its gregarious and migratory habits. It is there known as the army-worm or *Heerwurm* from its collecting at certain seasons in companies—sometimes consisting of millions —and traveling along in a body of often from 12 to 15 feet in length and 2 or 3 inches broad and perhaps a half inch thick. 'M. Guérin Méneville observed columns as many as thirty yards in length.' The species has not been positively determined, but it is accepted as either *Sciara Thomæ* (Linn.) or *S. militaris* Now.—but probably the latter, according to the statement of Baron Osten Sacken. Similar gatherings have been observed in this country, one of which is narrated in *Insect Life,* iv, 1891, page 214; two others recorded by Glover in the *Report of the Commissioner of Agriculture* for 1872, p. 115, as observed in Virginia (figures of the larva and fly are given); and two others by Prof. F. M. Webster, in *Science* for February 23, 1894, p. 109. With us they bear the name of 'snake-

worms,' from the snake-like appearance and movements of some of the processions."

Nothing further need here be said concerning habits as it is proposed to discuss more fully the details of life history and of injury caused by any given form under the respective species.

Remedial Measures.

As a remedy against those species which feed upon the cultivated mushrooms Lintner in his 10th report suggests occasional applications of pure and fresh pyrethrum in water, using it of the strength of one ounce to 4 to 8 gallons of water, as the larvæ may be deeper beneath or nearer to the surface of the beds. As a preventive measure the cellars may be closely screened and the beds covered with small mesh screen frames. For those which are associated with scab or rot the measures taken in combatting these will also hold in check the ravages which may be occasioned by the insect. The remedies and preventive measures applied for the railroad worm or apple maggot and the codling moth will also control the apple midge.

TABLE OF SUBFAMILIES.

a. Medio-cubital crossvein (M-Cu) present; i. e., a vein connecting the media with the cubitus (figs. 70, 71), or these veins contiguous for a short distance at the place where the crossvein usually is.

b. The radio-medial crossvein (R-M) distinct, not obliterated by the coalescence of a portion of radius and media.

c. Radius with more than 2 branches, anterior branch of the radial sector sometimes short and crossvein like.

d. The M-Cu crossvein far proximad of the R-M crossvein, the cell M less or but little more than half as long as cell R. (figs. 74-76). 1. Sub-fam. *Bolitophilinæ.*

dd. The R-M and the M-Cu crossvein nearly equidistant from the base of the wing, usually only one basal cell.

e. The radius with 4 branches (European). Sub-fam. *Pachyneurinæ.*

ee. The radius with but 3 branches (figs. 77-81), 2. Sub-fam. *Mycetobiinæ*.

cc. The radius with but 2 branches (fig. 91). 3. Sub-fam. *Diadocidinæ*.

bb. The radio-medial crossvein (R-M) obliterated by the coalescence of a section of the basal portion of the radius and media at the point where the crossvein usually is. (Figs. 82-90).

c. Antennæ short, usually thick set and often flattened. (Figs. 82-89). 4. Sub-fam. *Ceroplatinæ*.

cc. Antennæ very slender, and nearly as long and often much longer than the body (fig. 90). 5. Sub-fam. *Macrocerinæ*.

aa. The medio-cubital crossvein (M-Cu) absent.

b. The anterior branch (R_{2+3}) of the radial sector distinct, short, ending in R_1 and appearing like a supernumerary crossvein bounding distally the small rectangular or trapezoidal cell R_1 (fig. 72). 6. Sub-fam. *Sciophilinæ*.

bb. R_{2+3} not distinct from R_{4+5}, the cell R_1 thus open to the margin of the wing.

c. Coxæ much elongated, (fig. 56), the R-M crossvein usually distinctly angulated from the second section of the radial sector; the cubitus usually forks noticeably distad of the base of the wing (fig. 73). 7. Sub-fam. *Mycetophilinæ*.

cc. Coxæ not greatly elongated; the R-M crossvein in the same right line with the second section of the radial sector; the cubitus forked near the base of the wing. 8. Sub-fam. *Sciarinæ*.

1. Subfamily BOLITOPHILINÆ.

Bolitophilinæ Winnertz, Verh. Zool-bot. Ges. Wien, XIII, 657. 1863.

Long slender species, with abdomen having 7 to 9 visible segments, 12 to 17 jointed antennæ, coxæ either long or short; wings long and rather narrow; radius 3 branched, both the

basal cells R and M distinct and closed at the distal end by the crossveins or by the coalescence of the basal section of the media and cubitus; the cell M much shorter than the cell R.

Table of genera.

a. R_{2+3} shorter than the distance of its base from the crossvein and shorter than R_{4+5}.
   b. Antennæ 17 jointed, slender (figs. 75, 76). 1. *Bolitophila.*
   bb. Antennæ 12 jointed (fig. 74). 2. *Hesperinus.*
aa. R_{2+3} much longer than the distance of its base from the R-M crossvein (fig. 79). Fossil genus. 3. *Mycetophætus.*

1. Genus *Bolitophila* Meigen.

Bolitophila Meigen, Syst. Beschr. Zweifl. I. 220. 1818.
Messala Curtis, Brit. Ent. 581. 1836.

Head hemispherical; 3 ocelli arranged in a curved line on the broad front; palpi 4 jointed; antennæ filiform, in the male nearly as long as the body, of the female shorter, 2+15 jointed. Thorax small, highly arched. Abdomen slender, of the male with 8, of the female with 9 visible segments. Legs slender, tibial spurs short and weak. Venation as figured (figs. 75, 76).

Table of species.

a. Anterior branch of the cubitus disconnected at the base (fig. 76). 1. *disjuncta*
aa. Anterior branch of cubitus connected at the base.
   b. R_{2+3} ends in R_1 (fig. 75). 2. *cinerea.*
   bb. R_{2+3} ends in the costa.
      c. The subcosta ends at or distad of the base of the radial sector in the male. 3. *hybrida.*
      cc. The subcosta ends noticeably proximad of the base of the radial sector. 4. *montana.*

1. *Bolitophila disjuncta* Loew.

1869. *disjuncta* Loew. Beschr. europ. Dipt. I. 19. 17.

Male. Length 6 mm. Head cinereous, proboscis brownish, palpi yellowish; antennæ about as long as the insect, fuscous,

scape and base of the flagellum yellow. Mesonotum with 3 broad cinereous stripes; the humeri, space between the stripes, yellow. Pleura, sternum and metanotum brownish. Abdomen wholly fuscous. Coxæ and legs yellow, tibiæ and tarsi slightly infuscated, fore metatarsus about .9 as long as its tibia, claws minute, apparently simple, pulvilli plumose, empodium like a stag's horn. Wings (fig. 76) hyaline, distinct brownish stigma at apex of R_1, subcosta ends in the costa less than the length of the R-M crossvein before the base of the radial sector, R_{2+3} ends in the costa slightly distad of the tip of R_1, base of Cu_1 wanting, veins yellowish. Length of wing is 6 millimeters which is twice as long as the fore tibia. Halteres yellow, knob brown. Several specimens collected by Prof Aldrich, Juliaetta, Idaho. The specimen in the Loew collection at Cambridge is from New Hampshire.

2. *Bolitophila cinerea Meigen.*

1818. *cinerea* Meigen, Syst. Beschr. I. 221.

Male and female. Length 4 to 6 mm. Antennæ fuscous, yellowish at the base, shorter than the body; palpi yellow. Thorax light brown, grayish pollinose, mesonotum subfuscous with yellowish humeri, sometimes with indications of 3 longitudinal stripes; scutellum brown; abdomen brown. Coxæ and femora yellow, the latter and the tibiæ sometimes subfuscous, tarsi brown, fore metatarsus is .85 times as long as its tibia. Wing (fig. 75) cinereous tinged, with brown veins and pale subobsolescent stigma, subcosta ends distad of the base of the radial sector, R_{2+3} ends in R_1, the M-Cu crossvein present, though short and stout. Length of wing is as long as the body which is about 1.75 times as long as the fore tibia. Halteres with brown knob.

Several specimens. Ithaca, N. Y. May and September.

3. *Bolitophila hybrida* Meigen.

1804. *hybrida* Meigen, Klass I. 47.

1818. *fusca* Meigen, Syst. Beschr. I. 221.

Male and female. Length 4 to 6 mm. Palpi pale, face, front and vertex brown, antennæ brown, yellow at the base. Thorax pale brown, dorsum pale brown, or more yellowish

with 3 brown stripes. Scutellum yellowish. Coxæ and legs yellowish, tibiæ and tarsi more or less brown; tibiæ and tarsi of hind legs subequal in length. Wing cinereous tinged, veins and stigma brown; sometimes with indistinct spot just distad of the R-M crossvein; the subcosta ends in the costa distad of the base of the radial sector, at least in the male; the M-Cu crossvein present, though short and stout. Halteres with brown knob. White Mts., N. H. (det. Coquillett) and Mayfield Cave, Ind. (det. Adams). Selkirk Mts., B. C.; collected by J. C. Bradley.

4. *Bolitophila montana* Coquillett.

1901. *montana.* Coquillett, Proc. U. S. Nat. Museum, XXIII. 593.

Female. Length 4.5 mm. Dark brown, the base of the third antennal joint, peduncle of the halteres, coxæ, femora and tibiæ light yellow, sides of mesonotum largely brownish yellow, mesonotum polished; wings hyaline, stigma elongate oval, gray; subcosta reaches only slightly beyond middle between humeral crossvein and base of the radial sector, R_{2+3} terminates in the costa, the media at its base coalescing for a short distance with the upper branch of the cubitus. Mount Washington, N. H.

Male specimen from Ithaca, New York, taken in September has the antennæ over 3-4 as long as the body, and the fore metatarsus .9 as long as its tibia, which is half as long as the wing. It differs from the female in having a shining black mesonotum and dark brown pleura, and also in the length of the subcosta which ends somewhat distad of the point midway between the subcostal crossvein (not humeral crossvein) and the base of the radial sector.

2. Genus *Hesperinus* Walker.

Hesperinus Walker, List Dipt. Brit. Mus. I, 81. 1848.

Spodius Loew, Berl. Ent. Zeitschr. II. 108. 1858.

Rather large, bare, blackish species resembling *Bolitophila* in habitus. Head small, round, palpi incurved, 4 segmented; antennæ 12 jointed; eyes round, ocelli 3. Abdomen slender, with 7 or 8 visible segments. Legs long and slender, coxæ not

elongate; femora somewhat thickened distally; tibiæ with small spurs; metatarsi lengthened, claws small, pulvilli and empodium distinct. Wings large and broad; Sc_1 long, extending beyond the middle of the wing; R_{2+3} shorter than the distance of its base from the R-M crossvein, the media rises at the base of the wing, the fork of the cubitus and the M-Cu crossvein equidistant from the base of the wing and far proximad of the R-M crossvein (fig. 74).

Hesperinus brevifrons Walker.

1848. *brevifrons* Walker. List. Dipt. Brit. Mus. I. 81.

Female. Length 6 mm. Wholly fuscous, legs, halteres, and center of tergum of each abdominal segment paler than thorax. Front broad, with 3 large ocelli arranged in a triangle, the middle ocellus most cephalad; palpi 4 jointed, the first and second but little longer than broad, the third more slender, about 4 times as long as broad, the fourth slightly longer than the third, each joint with 10 to 15 stout black setæ as well as with very minute setulæ which are arranged in transverse rows; antennæ 12 jointed, the first and second broader than long, the third about 3 times as long as broad, the remaining 9 joints about as broad as long and only slightly diminishing in size apically, with few short setæ. Antennæ if bent back would scarcely reach scutellum. Thorax with indications of 3 broad cinereous stripes, almost bare. Abdomen with 9 visible segments, nearly bare, ovipositor with 2 slender oval lamellæ. Legs long but rather stout, tibial spurs very short, inconspicuous and depressed. Fore metatarsus about .4 the length of the tibia, tarsal claws apparently simple, empodium pad-like, pulvilli conspicuous. Wings cinereous hyaline, veins pale fuscous, except M-Cu crossvein which is paler, stigma faintly indicated; venation as figured (fig. 74); subcostal crossvein present, anal vein slender, rather faint but prolonged to the wing margin. Length of wing 6 mm. which is 2 2-3 times the fore tibia in length. Mt. Greylock, Mass. June. C. W. Johnson, collector. The species has been recorded from Alaska, Canada, Colorado, and White Mountains, New Hampshire.

The specimen in the U. S. National Museum determined as this species as I recollect seeing it, is the same as the one

described above. In habitus it reminds one far more of the Bibionid genus *Plecia* than it does *Bolitophila,* from which it differs mainly in having 12 antennal joints and but 4 palpal joints. I believe it should be placed with the Bibionidæ.

3. Genus *Mycetophætus* Scudder.

Mycetophætus Scudder. Bul. U. S. Geol. Survey 93. 19. 1892.

This fossil genus appears to be closely akin to *Hesperinus,* differing mainly in having a much longer R_{2+3}. Venation as figured (fig. 79). Legs long and slender, the fore femora considerably longer than the thorax, the tibia longer than the femora, both abundantly spinose. Abdomen 8 segmented. The only species is M. intermedius Scudder, from Florissant, Colorado.

2. Subfamily MYCETOBIINÆ.

Mycetobiinæ Winnertz. Verh. zool.-bot. Ges. Wien. XIII. 666. 1863.

A group possessing in common the following characters; 16 or 17 jointed antennæ; 3 ocelli on the vertex; wings rather broad, both the R-M and the M-Cu crossvein present and nearly equidistant from the base of the wing; radius 3 branched; legs long and slender and the tibial spurs rather short.

Table of genera.

a. Subcostal vein (Sc_1) long, reaching at least 1-4 the length of the wing and usually ending in the costa.
   b. R_{2+3} and R_{4+5} both arise at the R-M crossvein. (Fig. 77). 1. *Mycetobia.*
   bb. R_{2+3} and R_{4+5} separate distad of the crossvein. (Fig. 78). 2. *Palæoplatyura.*

aa. Subcostal vein (Sc_1) vestigial.
   b. The media forks distad of the base of R_{2+3}. (Fig. 80). 3. *Ditomyia.*
   bb. The media forks proximad of the base of R_{2+3}. (Fig. 81). 4. *Symmerus.*

1. Genus *Mycetobia* Meigen.

Mycetobia Meigen, Syst. Beschr. I. 229. 27. 1818.

Head spherical, flattened in front, 3 ocelli arranged in a triangle on the front, the anterior one smaller; palpi 4 segmented; antennæ 2+15 jointed, almost annular, the apical joint very small. Abdomen with 7 plainly visible segments. Tibiæ with short and slender spurs, lateral setæ of middle and hind tibiæ small. Wing broad (fig 77); subcosta about 1-3 as long as the wing, subcostal crossvein wanting; R_{2+3} arises at the R-M crossvein, R_{4+5} ends near the tip of the wing, the costa is prolonged a little beyond it, the media arises apparently at the M-Cu crossvein, though there is usually an indication of the true basal section of this vein in the form of a fold-like vein bisecting the basal cell; the cubitus forks slightly proximad of of M-Cu crossvein, anal vein ends in the margin of the wing.

Mycetobia divergens Walker.

1856. *divergens* Walker. Insecta Saundersiana, Dipt. I. 418.
1867. *persicæ* Riley, Prairie Farmer 15 June. vol. 35. n. s., V. 19, p. 397 (Mycetophila).
1869. *sordida* Packard, Guide to study of Insects. 388.
1903. *marginalis* Adams, Kansas Univ. Science Bulletin II. 2. 21.

Male and female. Length 3 to 4 mm. Head black, subshining, tip of palpi yellow; antennæ black including the basal joints. Mesonotum black, shining, humeri, lateral and posterior margins, and scutellum with a reddish tinge, pile yellow, pleura and metanotum black, mostly shining. Abdomen variable, shining, basal segments usually more or less yellow, apical segments blackish, pile yellow. Legs yellow, tarsi infuscated at the tip, fore metatarsus 2-3 as long as its fore tibia. Wings hyaline, subcosta ends in the costa proximad of the base of R_{2+3}; venation as figured (fig. 77). Length of wing 3 to 4 mm. which is 3 1-3 times as long as the fore tibia. Halteres yellowish. Ithaca, N. Y.; Boulder, Col. (T. D. A. Cockerell, collector); Gardiner, Maine.

In my specimens there is considerable variation in the amount of color on the abdomen, in other respects they appear identical. This variation has led me to believe that the synonymy given above is correct.

Larva. Slender, legless, resembling the larva of an aquatic Ceratopogon, 12 segmented. Head yellowish brown, oblong, about twice as long as wide; labrum with rounded margin, setose ventrally; mandibles when extended, reach cephalad of margin of labrum, brown in color, apical half oval, margined with a number of blunt teeth, mesal margin also with toothed hook produced cephalad, maxilla fleshy, its palpus short, papillate; hypopharynx setose; labium with brown margin, and with 2 pointed teeth on lateral cephalic margin; a few scattered setæ on head; 2 eye spots. Body hyaline, whitish, the 2 main tracheal trunks open on the center of the lateral margin of the first thoracic segment and extend to the apex of the twelfth abdominal segment; they are connected by a strong commissure at the cephalic end of the second thoracic segment. At the posterior end the spiracles are surrounded by a fringe of setæ which project out at right angles to the axis of the body. Length of full grown larva about 7 mm.

Pupa. Brown; tapering, with a few caudad projecting spines from the thorax and each of the abdominal segments. Length 4 mm.

Habit. This species has been reported a number of times by fruit growers as causing injury to the roots of apple and peach trees. It has been found to occur in the rotting wood of these trees but it is extremely doubtful if it is able to cause injury to the sound wood. Both Riley and Walsh as well as Glover have recorded it and all are agreed as to the inoffensive character of this insect. The specimens upon which the above descriptions were drawn, were sent to me by Mr. Gardiner, of Gardiner, Maine.

2. Genus *Palæoplatyura* Meunier.

Palæoplatyura Meunier, Miscell. Entomol. VII. 164. 1899.

Head depressed, front broad, ocelli 3 in number remote from eye margin, palpi 4 jointed; antennæ 2+14 jointed, about as long as head and thorax taken together. Thorax arched, setæ not prominent; abdomen of the male with 7 visible segments; hypopygium small, consisting of a pair of 2 jointed forceps, the basal joint stout, the terminal joint curved, about 4 times as long as broad, the apex toothed and densely ciliated on the inner side. Legs slender, tibial spurs about 1.5 times as long

as the diameter of the femur at the widest part; tarsal claws toothed, empodium prominent. Wings (fig. 78) broad, longer than the abdomen; costa produced beyond the tip of R_{4+5}, almost reaching the tip of the wing; subcosta less than 1-3 the length of the wing, ending in the costa a little beyond the point where the radial sector begins; subcostal crossvein present or absent; R_1 ends about 2-3 the length of the wing, R_{2+3} about as long as basal section of the radial sector and ends a little beyond the tip of R_1, the R-M crossvein stout and very short, the media arises near the base of the wing and is represented by a delicate fold-like vein to the crossvein, beyond which it is strong and forks about half way from the crossvein to the base of R_{2+3}; cubitus forks slightly proximad of the M-Cu crossvein; second anal vein may be produced to margin or may be abbreviated. Contains recent as well as fossil forms.

Table of species.

a. Wing immaculate; subcostal crossvein absent, anal vein not reaching margin of the wing. 1. *aldrichii.*

aa. Wing with markings; subcostal crossvein present, anal vein reaches margin of wing. (fig. 78) 2. *johnsoni* n. sp.

1. *Palæoplatyura aldrichii* Johannsen.

1909. *aldrichii* Johannsen, Genera Insectorum, Mycetophilidæ. 10.

Male. Length 4 mm. Head, face and antennæ fuscous, basal joint of the last and palpi yellow; ocelli arranged in a triangle. Thorax pale brownish, including pleura, sternum and scutellum, the mesonotum with 3 confluent darker stripes, metanotum dark brown, humeri and supra-pleural stripe yellow; black setæ arranged in 5 longitudinal lines, 3 on the mesonotum and 2 on the lateral margin; scutellar setæ fine and numerous, but little longer than those on the humeri. Abdomen brown, darker apically, with black setulæ; hypopygium as described for the genus. Coxæ and legs pale yellow, tarsi infuscated, fore metatarsus about .7 as long as its tibia; spurs yellow. Wings hyaline, with a very faint smoky tinge, heavier veins brown, slender veins more yellowish; subcostal crossvein wanting, anal vein stout but not reaching margin of the wing. Halteres yellow.

One specimen from Professor Aldrich. Friday Harbor, Wash. This species differs in several important structural characters from the following, though for the present they will be left in the same genus.

2. *Palæoplatyura johnsoni* n. sp.

Male. Length 5 mm. Head subshining black; ocelli in a transverse line set low on the front, the median one smaller than the laterals. Face fuscous, oval margin produced and covered with erect black setæ; labellæ and palpi yellow, both of medium size, the latter with 4 joints of which the first and second are subequal, the third about thrice, the fourth 4 times as long as the first, all with a few black setæ, those of the fourth small and inconspicuous; the scape yellow, the basal joints of the flagellum yellowish, the remaining joints fuscous; first flagellar joint about twice as long as wide, the other joints but little longer than their width; whole antenna if bent back would scarcely reach the metanotum. Mesonotum shining yellow with 3 brown stripes, the middle one widest, setæ black, sparse, not arranged in longitudinal rows; scutullum yellow, without prominent setæ; metanotum and pleura except at base of the wing, brown. Abdomen brown, the apical margin of the segments, except of the first, yellow; setæ black. Posterior end and hypopygium crushed in the single specimen, hence cannot be described. Coxæ and legs yellow, tarsi more dusky, fore metatarsus slightly longer than its tibia, setæ of middle and hind tibiæ small and inconspicuous, shorter than the diameter of the tibia; one spur on fore tibia, 2 subequal ones on each of middle and hind tibiæ; empodium consists of a few short setæ, the claws each with 2 short, stout, straight teeth proximad of the middle. Wings (fig. 78) grayish hyaline with markings as follows: an oval brown spot covering the R—M crossvein and extending distad to beyond the fork of the media with a tiny hyaline spot in it just distad of the crossvein; a small brown spot at costal margin and filling the space between R_{2+3} and apex of R_1; an elongate spot covering the apical end of Cu_2 and faintly merging into the posterior end of the subapical brown band which arises on the costa between the extremities of the branches of the radial sector and extends posteriorly more

faintly over the branches of the media and beyond the anterior branch of the cubitus where it nearly or quite reaches the wing margin; subcosta ends in the costa well beyond base of the radial sector, the subcostal crossvein is situated half way between the humeral crossvein and the base of the radial sector; R_{2+3} arises before the apex of R_1 but ends well beyond its tip; the costa is produced well beyond the tip of R_{4+5} but does not reach the tip of the wing; the anal vein is produced to the wing margin; the apical end of the first section of the radial sector and of the media hyaline white, the remainder of the veins brown, the heavier veins darkest. Length of wing 6 mm. One specimen from Burlington, Vt. taken in June by Mr. C. W. Johnson.

3. Genus *Ditomyia* Winnertz.

Ditomyia Winnertz, Stett. Ent. Zeit, VII, 14. 3. 1846.

Head spherical, flattened in front; 3 ocelli, unequal, in a transverse line; palpi 4 jointed; antennæ 2+15 jointed, the last very small, papilliform. Abdomen with 7 visible segments. Legs long and slender, tibiæ with short spurs. Wings (fig. 80) large, hairy, subcostal vein short, incomplete; R_{2+3} arises proximad of the fork of the media; media arises apparently at the R—M crossvein, the basal section having been wholly obliterated; cubitus forks slightly proximad of the M—Cu crossvein; anal vein prolonged to the margin.

Ditomyia euzona Loew.

1869. *euzona* Loew, Berl. Ent. Zeitschr. XIII. 1.

Male. Length 6 mm. Head, scape, and base of first flagellar joint yellowish, flagellum and palpi blackish. Thorax yellow, dorsum with dusky vittæ; scutellum except the base, fuscous. Abdomen yellow, each segment with a black posterior fascia which is dilated in the middle and on the lateral margins, hypopygium dusky. Coxæ and legs yellowish. Wings hyaline, grayish tinged, with the following fuscous fasciæ; the first near the base of the wing extends from the costa into the basal cell R, the second extends across the wing from near the apex of the subcostal cell to the posterior branch of the cubitus; the third widely covers the apex of the wing. Length of wing 6.2 mm. Halteres yellow.

The type, from the District of Columbia, is now in the museum at Cambridge, Mass. Another specimen of this beautiful species is in the United States National Museum.

4. Genus *Symmerus* Walker.

Symmerus Walker, List Dipt. Brit. Mus. I. 88. 1848.

Plesiastina Winnertz, Stett. Ent. Zeit. XIII. 55. 4. 1852.

Head, antennæ, palpi, abdomen and legs as with Ditomyia. Eyes somewhat approximated on the vertex, ocelli 3 in number. Fore tibiæ on inner side with several slender setæ, the hind pairs as with Ditomyia. Wing venation (fig. 81) as with Ditomyia but differs primarily in having a shorter R_{2+3}, the base of which is somewhat distad of the fork of the media, and the costa ends at the tip of R_{4+5}.

Table of species.

a. Thorax shining fuscous black; abdomen and halteres mainly black, the basal half of peduncle of the latter, yellow; length 5 mm. Eastern states. 1. *tristis.*

aa. Thorax and usually halteres also, mainly yellow.

b. Wings distinctly fasciate.

c. Wing with a single slender fascia across the cross-veins; abdomen black, segments with yellow posterior margins; length 12 mm. Mexico. 2. *lenis* n. n.

cc. Wing with two transverse fascia.

d. Thorax with 3 shining black stripes; legs mainly yellow, hind femora, tip of hind tibiæ, hind tarsi and tip of middle tibia, black, 6½-7 mm. Mexico. 3. *bifasciata.*

dd. Thorax yellow, reddish in the middle; legs pale, tarsi fuscous; length 10 mm. Mexico. 4. *mexicana.*

bb. Wings not distinctly fasciate.

c. Thorax shining yellow, abdomen yellow, segments with wide, black posterior margins; length 7-7½ mm. Eastern States. 5. *annulata.*

cc. Thorax yellow with blackish median fascia; dorsum of abdomen black, the segments with pale margins; length 4.5-6 mm. New York. 6. *lauta.*

1. *Symmerus tristis* Loew.

1869. *tristis* Loew, Berl. Ent. Zeitschr. XIII. 131. 2. (Plesiastina).

Female. Length 4.5 to 5 mm. Head fuscous black, vertex and flagellum of the antenna more purely black. Thorax shining fuscous black, pleura and metanotum a little paler. Abdomen blackish, with black pile, the apical segment and appendages yellowish. Legs and coxæ fuscous, trochanters and the knees pale. Wings (fig. 81) smoky, the petiole of the media shorter than its anterior branch. Halteres black, stem yellow at base. D. C. (Osten Sacken); Massachusetts (W. M. Wheeler, col.).

2. *Symmerus lenis* n. n. (not *zonata* Stephens).

1890. *zonata* Giglio-Tos, Boll. Mus. Anat. comp. Torino. V. No. 84. (Ditomyia).

Male. Length about 12 mm. Face, front and palpi pale yellow; eyes black, pubescent; 3 ocelli arranged in a transverse row upon a black spot; antennæ yellow, longer than the head and thorax combined, the 6 apical joints black. Thorax yellow, with yellow pile, with 3 vittæ confluent posteriorly; pectus and metathorax black; scutellum yellow. Abdomen black, pilose, the first segment wholly and posterior margins of the others yellow. Legs yellow, hind femora fuscous at the base; the tips of tibiæ and tarsi blackish. Wing slender, longer than the abdomen, with a slender subfuscous transverse fascia which extends from R_1 across the crossvein nearly to the posterior margin of the wing following here the course of Cu_2. Halteres yellow.

Female. Smaller; antennæ wholly testaceous, shorter. Abdomen sparsely pilose. Recorded from Orizaba, Mexico, by Giglio-Tos.

3. *Symmerus bifasciata* Williston.

1900. *bifasciata* Williston, Biol. Centr.-Amer. I. 217. (Plesiastina).

Male. Length 6½-7 mm. Head yellow, the ocelli on small blackish spots; antennæ longer than the head and thorax together, light yellow, the last seven joints black, the flagellum flattened. Mesonotum light yellow, with three broad shining

black stripes, the lateral ones abbreviated in front. Scutellum yellow, with the margin brownish. Pleura in part pitchy brown. Metanotum light yellow above, brown on the lower part. Abdomen: first segment and the venter light yellow; second to seventh segments, inclusive, shining black, with the hind margin yellow or yellowish, and clothed with yellow hair; remainder of abdomen black, with less abundant yellow hair; hypopygium yellow, with the superior organs blackish. Legs yellow; 4 posterior coxæ brownish; hind femora, tip of the hind tibiæ, the hind tarsi, and the tip of the middle tibiæ black; middle tarsi brownish; front tibiæ with weaker bristles; all the tibiæ with spurs, the hind pair with long and stout ones. Wings light yellow, with brown markings as follows: the whole of the costal cell, except sometimes a spot at the beginning of the yellow distally, the broad distal and narrow posterior margin, and a moderately broad band near the middle of the wing; the subcostal vein vanishes in a fold that ends about opposite the beginning of the radial sector; the radial sector forks before its middle, the media a little beyond the middle of the petiole of the radial sector; the costal vein ends at the tip of R_{4+5}. Mexico, Sierra de las Aguas Escondidas in Guerrero, 7000 feet.

4. *Symmerus mexicana* Giglio-Tos.

1890. *mexicana* Giglio-Tos, Boll. Mus. Zool. Anat. Comp. Torino. V. No. 84. (Ditomyia).

Male. Length 10 mm. Face and front yellow; eyes black, 3 ocelli, distant, placed in a right line upon a black spot; antennæ yellow, subfuscous toward the tip, longer than the head and thorax conjointly. Thorax yellow, reddish upon the center of the mesonotum. Abdomen black, with yellow pile, subclavate posteriorly, the whole of the first, and the posterior margins of the second and third, yellowish. Legs yellow, tarsi fuscous, each tibia with fuscous apex. Wings yellow, sparsely tomentose; longer than the abdomen, with 2 fuscous fasciæ, the first filling the basal half of the costal cell and extending across the disk of wing between the crossveins and the base of the fork of the media; the second broadly covers the apex of the wing. Halteres yellow. Recorded by Giglio-Tos from Orizaba, Mexico.

5. *Symmerus annulata* Meigen.

1830. *annulata* Meigen, Syst. Beschr. VI. 294. 3. (Plesiastina).

Male and female. Length 7 to 7½ mm. Palpi and face yellow; front and vertex fuscous; antennæ brown, the scape and sometimes the basal flagellar joints yellow. Thorax and abdomen yellow, shining, the latter somewhat compressed, with posterior half or two-thirds of each segment fuscous. Coxæ and legs yellow, tarsi infuscated; fore tibia only slightly longer than the fore metatarsus; all femora ciliated beneath. Wings grayish hyaline, costal cell more ferruginous; veins brown; subcosta a mere tooth. Recorded from New Jersey and New Hampshire.

6. *Symmerus lauta* Loew.

1869. *lauta* Loew, Berl. Ent. Zeitschr. XIII. 132. 3. (Plesiastina).

Male. Length 4½ to 6 mm. Pale yellow. Flagellum of antenna fuscous black; vertex in large part black. Mesonotum shining with 3 black vittæ, the median vitta paler anteriorly and divided by pale line; pleura immaculate. Tergum of each abdominal sclerite blackish with pale anterior and posterior margins, venter wholly pale yellow; hypopygium brownish, stout, superior forceps black, shorter than the inferior forceps. Legs pale yellow, tibial spurs black, tarsi infuscated. Wing tinted with cinereous; petiole of the media and M_2 subequal. Halteres yellow; knob infuscated. Recorded from N. Y. A defective specimen from Ithaca, N. Y., bears the date August 24.

3. Subfamily Diadocidiinæ.

Diadocidinæ. Winnertz. Verh. Zool.-bot. Ges. Wien. XIII. 656. 1863.

This subfamily is distinguished from all others in having the M-Cu crossvein present and at the same time only 2 branches of the radius.

Genus *Diadocidia* Ruthe.

Diadocidia Ruthe, Isis. II. 1210. 1831.

Macroneura, Macquart, Suites à Buffon I. 146. 1834.

Head rounded, flattened in front; ocelli, 3, subequal, in a triangle on the front; palpi 4 jointed; antennæ 2+15 jointed, the apical joint papilliform. Thorax ovate, arched. Abdomen with 7 visible segments. Legs slender, femora somewhat thickened; hind tibiæ with 3 rows of delicate setæ. Wings (fig. 91) hairy, large, with wide base; subcostal vein, long and ends in the costa; subcostal crossvein (Sc_2) present or absent; R_1 ending in the costa distad of the mid length of the wing; the radial sector unbranched and ending in the costa before its tip; second anal produced to the wing margin.

Table of species.

a. Recent species.
   b. Subcostal crossvein wanting; apex of R_1 far proximad of tip of Cu_1. Eastern States. 1. *ferruginosa.*
   bb. Subcostal crossvein present; apex of R_1 opposite the tip of Cu_1. B. C. 2. *borealis.*
aa. Fossil species. Colorado. *terricola.*

1. *Diadocidia ferruginosa* Meigen.

1830. *ferruginosa* Meigen, Syst. Beschr. VI. 294. 4. (Mycetobia)
1831. *flavicans* Ruthe, Isis, II, 1211 (Diadocidia).
1834. *Winthemi* Macquart, Suites à Buffon. I. 147. 34. (Macroneura).

Male and female. Length 3 mm. Front, vertex, face and antennæ brown, base of the last and proboscis and palpi yellow. Thorax yellow, with 3 subcoalescent brown stripes, wanting in immature specimens; scutellum yellow; metanotum brown. Abdomen sordidly yellowish, darker apically. Legs yellow, tarsi infuscated; fore metatarsus nearly 2-3 as long as its tibia, hind tibia longer than the tarsus. Wing (Fig. 91) tinged with gray, with pale brown veins and gray setulæ; subcostal crossvein wanting. Halteres yellow. Ithaca, N. Y., August 10; Auburndale, Mass., July 16, (C. W. Johnson). Has also been recorded from the White Mountains, New Hampshire.

2. *Diadocidia borealis* Coquillett.

1900. *borealis* Coquillett, Proc. Wash. Acad. Sciences. II. 390.

Male. Length 4 mm. Head and antennæ dark brown, two basal joints of the latter, also the proboscis and palpi, yellow; thorax polished, yellow, the dorsum, except the front corners, dark brown; scutellum yellow; metanotum brown; abdomen dark brown, slightly polished, its hairs yellowish; coxæ and femora light yellow, tibiæ and tarsi brown, front tarsi slender; knob of halteres yellowish brown; wings hyaline, densely covered with short hairs, subcostal crossvein present, tip of R_1 about opposite apex of anterior branch of the cubitus. Lowe Inlet. B. C.

4. Subfamily CEROPLATINÆ.

Ceroplatinæ, Winnertz. Verh. Zool.—bot. Ges. Wien. XIII. 684. 1863.

The primary distinction possessed by the members of this subfamily is found in the wing venation. The R—M crossvein is obliterated by the coalescence of a section of the basal portion of the radius and media at the point where the crossvein usually is. The antennæ are short, usually thickened, and often more or less flattened.

Table of Genera.

a. Face and proboscis prolonged, beak-like or snout-like. (figs. 46, 49 and 87). 1. *Asindulum.*

aa. Proboscis short, not beak-like.

b. Antennæ very much flattened, strap-like; palpi porrect, not incurved (figs. 47, 48).

c. R_{2+3} ends in R_1 (fig. 82). 2. *Ceroplatus.*

cc. R_{2+3} ends in the costa (fig. 83). 3. *Cerotelion.*

bb. Antennæ not conspicuously flattened, palpi incurved, and moderately elongate.

c. Media arises at the base of the wing, basal section may be delicate and fold-like.

d. R_{2+3} ends in the costa (fig. 89). 4. *Hesperodes.*

dd. R_{2+3} ends in R_1 (fig. 88). 5. *Apemon.*

cc. Media apparently arises at the crossveins; i. e., its basal section wanting (figs. 84, 85, 86). 6. *Platyura.*

1. Genus *Asindulum Latreille.*

Asindulum. Latreille, Hist. Nat. Crust. Ins. XIV. 290. 1805.

Head transversely oval; middle ocellus smaller than the laterals; proboscis much elongated, deeply cleft (figs. 46, 49), palpi 4 jointed, incurved; antennæ 2+15 jointed, apical joint small, papilliform. Thorax arched; abdomen with 8 visible segments. Legs slender, the femora, particularly the hind pair, stout, the tibiæ with spurs and with delicate lateral setæ. Venation (fig. 87) as figured, resembling that of *Platyura.*

Table of species.

a. Length 8 to 8½ mm.; abdomen with the first 3 segments black, the remaining ones more or less yellow. N. Y., N. H., S. D. 1. *montanum.*

aa. Length about 5mm.

b. Abdomen wholly and thorax mainly black; fore metatarsus .8 as long as its tibia. Canada. 2. *coxale.*

bb. Abdomen and thorax more or less yellow. New Hampshire. 3. *flavum.*

1. *Asindulum montanum* Rœder.

1887. *montanum* Rœder, Wien. Ent. Zeit. VI. 116.

Male and female. Length 8 to 8½ mm. Black, epistome yellow, proboscis (fig. 46) black, antennæ fuscous-black. Thorax of the male black with yellow humeral angle and pleura; of the female and immature males yellow with three black longitudinal stripes; scutellum yellowish, often infuscated. The first three abdominal segments black, the remaining ones yellow though not infrequently more or less infuscated. Hypopygium yellowish brown; the inferior forceps lamelliform. Legs yellow, fore metatarsus ¾ as long as its tibia. Wings (fig. 87) hyaline; apically especially on costal margin somewhat smoky. Halteres yellow. White Mountains, N. H. (Cornell University collection); Adirondack Mountains, N. Y.; and S. D. (Aldrich).

2. *Asindulum coxale* Loew.

1869. *coxale,* Loew. Berl. Ent. Zeitschr. XIII. 132. 4.

Male. Length 5 mm. Black, including head, antennæ, proboscis (fig. 49) and body pile. Anterior part of lateral margin

of the mesonotum narrowly yellowish as well as the sides of the scutellum. Abdomen and hypopygium black, the superior forceps slender, the inferior pair broad, neither very prominent. Coxæ and legs yellow, trochanters, tibial spurs and tarsi blackish; fore metatarsus .8 as long as its tibia. Wing subhyaline, slightly more cinereous apically. Halteres yellowish, knob fuscous above. Recorded from Hudson Bay Territory. I have a specimen from Montreal.

3. *Asindulum flavum* Winnertz.

1846. *flavum* Winnertz, Stett. Ent. Zeit. VII. 17. (Macrorrhyncha).

Male and female. Length 4 to 5½ mm. Face, epistome, labellæ, lower front, base of antennæ, and occiput yellow; proboscis and remaining parts of the head black. Thorax yellow with 3 pale brown, sometimes obsolescent, stripes; scutellum with black hairs. Abdomen of the male with basal segments yellow, apical segments brown to black, hypopygium black; of the female yellow, anterior margin of each segment with a brown transverse fascia, terminal segments usually black; in immature specimens the fascia are obsolete. Coxæ and femora pale yellow; tibiæ pale brown; tarsi, spurs and setæ of tibiæ, brown; fore metatarsus ¾ as long as its tibia. Wing yellowish. Halteres whitish. The larvæ have been found in decaying wood. I have seen a specimen from New Hampshire.

2. Genus *Ceroplatus* Bosc.

Ceroplatus, Bosc. Act. Soc. Hist. Nat. Paris I. 1. 42. 1792.

Head small, ovate; three ocelli arranged in a transverse curved line; palpi (fig. 47) not incurved, 3 or 4 jointed; antennæ shorter than head and thorax taken together, very broad and flat, compressed, strap-like, 2+14 joints, the intermediate joints much broader than long (fig. 48). Thorax ovate; abdomen with 7 visible segments. Legs long, lateral setæ of tibiæ either absent or very minute. Wings (fig. 82) shorter than the abdomen; costa produced beyond the tip of R_{1+2} but ending before the tip of the wing; subcosta ends in the costa; subcostal crossvein, when present, basal in position; R_{2+3} ends in R_1; media with a short petiole; anal vein produced to the wing margin.

Table of species.

a. Thorax and abdomen black, lateral margin of abdominal segments whitish; wing with black mark; length 10 mm. Carolina. 1. *carbonarius.*

aa. Thorax more or less yellow.

b. Abdomen nearly entirely yellow; coalesced part of the media longer than the petiole. 2. *terminalis.*

bb. Abdomen with distinct brown markings.

c. Coalesced part of the media about equal to the length of the petiole; dark spot near apex of wing; abdominal segments more than half yellow. 3. *clausus.*

cc. Coalesced part of the media about twice the length of the petiole; no spot near apex of wing in male, and only feebly indicated in the female; yellow of abdomen confined to apical third of each segment. 4. *militaris.*

1. *Ceroplatus carbonarius* Bosc.

1802-4. *carbonarius* Bosc, Nouv. Dict. Nat. Hist. IV. 543.

Length 10 mm. Head black; thorax black, smooth; abdomen elongate, cylindrical, black, the lateral margins of each segment white; wing hyaline with black apex; legs dusky. Carolina.

2. *Ceroplatus terminalis* Coquillett.

1905. *terminalis* Coquillett. Journ. N. Y. Ent. Soc. XIII. 69.

Male. Length 9-10 mm. Light yellow; claws and ocellar area, black; vertex, a fine median line and 2 pairs of thoracic dorsal stripes of which the inner pair converge posteriorly, longitudinal pleural stripes, sternum, median spot on scutellum, lateral spots on first abdominal segment, knob of halteres, spot on sides of middle and hind coxæ and their apices, antennæ and forceps more or less brown. Antennæ more dusky yellow than the remaining parts. Inferior tubercle of the first antennal joint subconical, over half as long as the diameter of the second segment. Thoracic and abdominal setæ black. Wings hyaline, veins yellowish brown, an oval yellowish cloud over R_{2+3} extending into the adjacent cells, subcostal crossvein present;

coalesced part of the media a little longer than the petiole. Tibiæ and tarsi appear infuscated because of the longitudinal rows of the black setulæ; metatarsi of middle and hind legs sparsely ciliate on flexor surface with short setæ. Described from a specimen from the Western states. The species was recorded from Kaslo, British Columbia, by Mr. Coquillett.

3. *Ceroplatus clausus* Coquillett.

1901. *clausus,* Coquillett, Proc. U. S. Nat. Mus. XXIII. 594.

Male and female. Length 7 to 8 mm. Yellow, upper part of head brownish yellow, a black ocellar dot, the antennæ, 4 indistinct vittæ on mesonotum, 1 or 2 spots on pleura, a fascia at base of each segment of abdomen and knobs of halteres brown; antennæ greatly compressed, the joints except last one wider than long; wings (fig. 82) hyaline, a grayish brown spot fills the cell R_{2+3} and encroaches on the adjoining cells; subcostal vein extends considerably beyond the base of the radial sector; subcostal crossvein close to the humeral, R_{2+3} ends in R_1 at about its length before the apex of the latter, costa scarcely extending beyond the apex of R_{4+5}, cubitus forks considerably beyond the base of the radial sector. Recorded from New Hampshire and New Jersey by Coquillett. I have specimens from Ithaca, New York.

4. *Ceroplatus militaris* n. sp.

Male. Length 8 mm. Face, palpi, posterior margin of eye, and narrow space over base of antennæ, yellow; vertex posterior part of head, antennæ, and a slender streak between antennæ brown; ocellæ area black; basal joint of antenna with tubercle below. Thorax mainly yellow, with 6 dark brown longitudinal stripes, the median pair meeting posteriorly and produced upon the scutellum, sometimes a slender median line between this pair, the latter sometimes connected by a transverse stripe anteriorly; the first laterals somewhat broader than the median pair; the second laterals on the margin of the mesonotum, narrow, and sometimes interrupted, usually reaching the base of the wing, pleura with large brown spot, sternum and margin of the prominent pteropleural lobes infuscated; scutellum and metanotum yellow. Setæ on thorax short, black and sparse; those on

mesonotum and scutellum rather more conspicuous. Anterior 2-3 of each tergum brown, posterior third yellow, venter mainly yellow, seventh segment nearly wholly brown, terminal segment yellowish; abdominal setæ short, black, those on posterior margin of first ventral segment most conspicuous; the forceps which are pale yellow consist of 2 small conical lobes. Coxæ and legs pale yellow, extreme tips of coxæ and immediate bases of femora brown, second and third coxæ sometimes with a brown spot near middle; tibiæ and tarsi appear infuscated due to the fine, black setulæ which are arranged in longitudinal rows; metatarsi of middle and hind legs, sparsely ciliate with small setæ which are less than half as long as the diameter of the metatarsus. Wings hyaline, faintly smoky, the cell R_{2+3} somewhat more dusky, veins brown; subcostal crossvein present, basal in position; coalesced part of the media about twice as long as the petiole, Halteres yellow with brown knob. Ithaca, New York. Specimens also from Intervale, N. H. (G. M. Allen); Philadelphia (C. W. Johnson).

A female specimen from Philadelphia differs in having a suggestion of a black cloud on apex of the wing and abdomen with greater extent of brown fasciæ.

3. Genus *Cerotelion* Rondani.

Cerotelion, Rondani, Dipt. Ital. Prodromus, I. 191. 2. 1856.

This genus possesses the characters of *Ceroplatus* but differs in having the anterior branch of the radial sector R_{2+3} ending in the costa instead of in R_1 (fig. 83). As far as known the subcostal crossvein is absent and the claws have only 1 or 2 basal teeth.

Table of Species.

a. Thorax spotless, reddish yellow, pleura yellow; abdomen reddish yellow, base of basal segments and the whole of the apical segments black. Length 3.7 mm. Kansas. 1. *apicalis.*

aa. Thorax with stripes.

b. Fore metatarsus a little longer than its tibia. Length 5 mm. Mexico, Pennsylvania. 2. *bellulus.*

bb. Fore metatarsus 2.5 times as long as its tibia. Length 6 mm. St. Vincent. 3. *longimanus.*

1. *Cerotelion apicalis* Adams.

1903. *apicalis,* Adams, Kans. Univ. Science Bull. II. 2. 22. (Ceroplatus).

Male. Length 3.7 mm. Head brownish, anterior part of front, 2 basal joints of antennæ, face and mouth-parts yellow; thorax immaculate, reddish yellow, the black pile very short, except on the sides, pleura light yellow, halteres with knobs slightly infuscated; abdomen reddish yellow, base of second, third, fourth, and remainder of apex wholly black; legs light yellow, apical half of tibiæ and tarsi wholly blackish; wings hyaline; smoky towards apex, subcostal vein ends in the costa about midway between humeral crossvein and base of the radial sector, R_{2+3} ends in costa about midway between tip of R_1 and apex of R_{4+5}, furcation of cubitus almost opposite base of radial sector. Kas.

2. *Cerotelion bellulus* Williston.

1900. *bellulus,* Williston, Biol. Centr. Amer. I. 219 (Ceroplatus).

Male. Length 5 mm. Head black, the narrow face and the palpi brownish. Antennæ brownish-black, the first 2 joints somewhat yellowish; flagellum broad and flattened, about twice the length of the head. Mesonotum not shining, brownish in color; in the middle with 2 coalescent stripes, terminating acutely behind and separated from a moderately broad oblique stripe of the same color on each side by a slender V-shaped brown marking. Pleura light yellow along the noto-pleural suture and below the root of the wing, brown elsewhere. Scutellum brownish. Metanotum yellowish. Halteres blackish, with a yellow stem. Abdomen brown, blackish at the tip; the anterior part of the fourth and fifth segments yellow. Coxæ yellow, the distal half of the 2 posterior pairs brown; femora yellow; tibiæ and tarsi brownish. The tibiæ without bristles. Wings (fig. 83) tinged with brownish; subcostal vein strong, not connected with R_1; the radial sector arising about opposite the middle of the distance between the humeral crossvein and the tip of the subcostal vein, R_{2+3} oblique, terminating a little distance beyond the tip of R_1, the costal section intervening not as long as R_{2+3}; the costal vein extends a little distance

beyond the tip of R_{4+5}; prefurca of the media nearly as long as the first section of the radial sector. Mexico, Teapa in Tabasco.

In Williston's figure the palpi appear incurved, this, however, may be the engraver's error. I have a specimen from Pottstown, Pa. (collected by C. W. Johnson) in which the face and palpi are yellow; the coalesced part of the media is but little more than half as long as the petiole; and each claw has a tooth near the base.

3. *Cerotelion longimanus* Williston.

1896. *longimanus,* Williston. Trans. Ent. Soc. Lond. 258 (Ceroplatus)

Male. Length 6 mm. Face yellow, very narrow. Palpi and first 2 joints of the antennæ yellow; remainder of the antennæ dark brown. Antennæ about as long as the dorsum of the thorax. Front narrow, the sides gently convex, black, except on the lowermost portion; the 2 large ocelli about equidistant from each other and from the margins of the eyes. Occiput black. Thorax yellow; the dorsum with 3 broad black stripes, enclosing 2 narrow yellow stripes, which are convergent posteriorly; the median stripe enclosing a slender yellow stripe, which does not reach beyond the middle; a large rounded spot on the mesopleura, another below it on the mesosternum, and the sides of the metanotum, dark brown or black, the middle of the metanotum brownish; scutellum brown. Abdomen slender, cylindrical, dark brown; each segment, save the first and last, with an elongate yellow spot on each side, reaching 2-3 of the way to the hind margin; genital organs yellow. Coxæ light yellow, the hind pair with a brown spot; femora yellow, the base of the middle and hind pairs brown; tibiæ yellowish-brown; tarsi brown; no bristles on the front femora; front metatarsi about 2.5 times the length of the tibiæ; middle metatarsi a fourth or a third longer than the tibiæ; the hind pair scarcely longer; hind tibiæ with two spurs. Wings tinged with brownish; R_{2+3} runs into the costa. St. Vincent Isl., 1000 feet.

4. Genus *Hesperodes* Coquillett.

Hesperodes Coquillett, Entomol. News. XI. 429. 1900.

Subcosta (fig. 89, diagrammatic) ends in the costa beyond the base of the radial sector; the subcostal crossvein is nearly midway between the humeral crossvein and the base of the radial sector, the latter forks beyond the apex of R_1; the media originates near the base of the wing and just before the union with the radial sector connected by the crossvein with Cu_1, and forking a short distance beyond the union with the radius; cubitus forking midway between the base of the radial sector and its union with the media; anal vein prolonged to the wing margin. Antennæ about twice as long as the head and thorax united, cylindrical but tapering to the apex; 2+14 jointed, the first joint as broad as long, the second twice as broad as long, and the others twice as long as broad; proboscis very robust, shorter than the height of the head; palpi 4 jointed, eyes emarginate opposite the antennæ; ocelli wanting. Abdomen slender, more than 3 times as long as the thorax. This genus, while superficially resembling *Hesperinus* in venation is a true Mycetophilid and more closely allied to *Apemon, Platyura,* etc.

Hesperodes johnsoni Coquillett.

1900. *johnsoni,* Coquillett, Entomol. News. XI. 429.

Male. Length 12 mm. Reddish yellow, antennæ and tarsi beyond the base changing to brown, legs destitute of strong lateral bristles, tibial spurs well developed; wings yellowish, becoming grayish hyaline on the posterior margin and at the apex, a brown spot at apex of R_1. Delaware Water Gap. N. J. July.

5. Genus *Apemon* Johannsen.

Apemon, Johannsen, Genera Insectorum, Mycetophilidæ. 20. 1909.

Resembles *Platyura* but differs in having a distinct, though delicate, fold-like basal portion of the media arising near the base of the wing, and in having no setæ, but only fine hairs upon head, thorax, coxæ and femora. The setæ of the abdomen, tibiæ and tarsi very small and inconspicuous. Antennæ 2+14 jointed, flagellar joints cylindrical, under 20 diameter magnifi-

cation only indistinctly pilose; ocelli large, arranged in a transverse line on the broad front, middle one only slightly smaller than the others; eyes pilose; palpi incurved, rather long, basal joint very small, second broad, about as long as broad, third joint about half as broad but twice as long as the second, fourth slender, about 5 times as long as broad; proboscis short. Thorax moderately arched, dorsum and scutellum provided only with hairs, those over the base of the wing and on the scutellum rather longer, pleura and metathorax nearly bare. Abdomen depressed, flattened, broadened apically, segments finely setulose, particularly on basal portion; male genitalia (fig. 97) small, simple, consisting primarily of two incurved lateral lobes, toothed at the apex. Legs moderately long; coxæ long, these and the femora short haired, setulæ of the tibiæ less than $\frac{1}{4}$ the diameter of tibia in length, spurs strong; fore metatarsus shorter than the tibia; all tarsi finely setulose, claws with teeth near the base of each; empodium conspicuous. Wings (fig. 88) resembling those of *Platyura;* media arises near the base of the wing; its first section is delicate and fold-like; R_{2+3} joins R_1 near its apex; anal vein prominent, produced to the wing margin.

Table of species.

a. Subcosta short, ending at or before the base of the radial sector.
  b. Length 6 mm. Abdomen yellow with anterior portion of each segment black. 1. *gracilis.*
  bb. Length 8 to 12 mm. Abdomen reddish yellow, first segment black; female. 2. *pectoralis.*

aa. Subcosta ends distad of base of radial sector.
  b. Mesonotum and abdomen reddish yellow, pleura, metanotum and first abdominal segment black; male. 2. *pectoralis.*
  bb. Mesonotum black or with brown stripes.
    c. Abdomen in part reddish yellow.
      d. Mesonotum reddish yellow with 3 dark brown stripes; part of third, fourth and fifth abdominal segments yellow, other segments black. 3. *maudæ.*
      dd. Mesonotum black, abdomen yellow, except first 2 segments. 4. *pulchra.*
    cc. Abdomen wholly black. 5. *nigriventris* n sp.

1. *Apemon gracilis* Williston.

1893. *gracilis* Williston, Kas. Univ. Quarterly II. 60 (Platyura).

Male. Length 6 mm. Antennæ black, much shorter than the thorax; first 2 joints yellowish. Head yellow, the vertex blackish. Thorax, coxæ, and femora yellow; the mesonotum more reddish with a fringe of black hairs above the root of the wings. Abdomen slender, not shining; yellow, the anterior portion of each segment brown or blackish. Tibiæ somewhat infuscated by the minute black hairs; tarsi blackish. Wings with a strong yellow or brownish tinge, the extremity with a blackish cloud; subcostal vein very short, terminating before the origin of the radial sector, the subcostal crossvein at about its middle; R_{2+3} at some distance before the tip of R_1; third anal vein wholly wanting. Washington.

2. *Apemon pectoralis* Coquillett.

1895. *pectoralis* Coquillett, Canad. Entomol. XXVII. 199 (Platyura).

Female. Length 12 mm. Front, occiput and antennæ, black; first 2 joints of the latter, the face, cheeks and mouth parts, yellowish. Thorax and scutellum reddish-yellow, pleura and metanotum bluish-black. Abdomen reddish yellow, the first segment black, the second 3 times as long as broad. Halteres yellowish. Coxæ and femora reddish yellow, tibiæ brownish-yellow, tarsi black. Wings yellowish-grey; a brown spot extends from the costa before the tip of R_1 to posterior branch of the media near its base; apex of wing from midway between tips of R_1 and R_{4+5} to apex of anal vein, grayish-brown; a brown cloud on the radial sector near its base; tip of subcostal vein opposite base of the radial sector, subcostal crossvein 1.5 times the length of the humeral beyond the latter; R_{2+3} oblique, ending twice its length before the tip of R_1; anal vein reaches the wing margin. Nevada.

Several male specimens taken by Prof. Aldrich in June at Grangeville and Moscow, Idaho, differ as follows: the brown cloud on apex of wing (fig. 88) less extended; the subcosta ends distad of the base of the radial sector, R_{2+3} is nearly per-

pendicular in position; the fore metatarsus is two-thirds as long as its tibia; hypopygium as figured (fig. 97). One specimen is only 8 mm. long, but otherwise does not differ.

3. *Apemon maudæ* Coquillett.

1895. *maudæ* Coquillett, Canad. Entomol. XXVII. 199 (Platyura).

Female. Length 9 mm. Head and antennæ black, palpi yellowish. Thorax, pleura and scutellum bluish-black. Abdomen reddish-yellow, first 2 segments black, the base of the second tinged with reddish; this segment is half longer than broad. Halteres yellowish. Coxæ reddish-yellow, blackened at their bases, femora deep yellow, tibia brownish-yellow, tarsi black. Wings yellowish-gray, a brownish spot extends from R_1, before its apex, to the posterior branch of the media near its base; apex of the wing from midway between tips of R_1 and R_{4+5} to apex of anal vein grayish-brown; a brown cloud on third vein near its base; tip of subcostal vein twice the length of the humeral crossvein beyond the base of the radial sector; subcostal crossvein 1.5 times the length of the humeral crossvein beyond the latter; R_{2+3} oblique, ending nearly its own length before the tip of R_1; anal vein reaches the wing margin. Male same as the female except the second abdominal segment is twice as long as broad, and R_{2+3} is perpendicular, ending twice its length before tip of R_1. Washington.

4. *Apemon pulchra* Williston.

1893. *pulchra* Williston, Kas. Univ. Quarterly II. 59 (Platyura).

Male. Length 8 to 9 mm. Antennæ about as long as the thorax; black on the under side, toward the base, red; first 2 joints yellow. Front and face black, the latter with whitish pubescence; palpi and proboscis yellow; occiput black; epistome moderately projecting. Mesonotum shining reddish yellow, with light-yellow hair; 3 dark brown stripes, separated by slender lines, the lateral ones abbreviated in front. Scutellum black. Pleura black, with reddish spots; the projecting metapleura yellowish. First 2 segments of the abdomen black; third segment reddish yellow, with a black hind border; fourth

segment and the anterior part of the fifth reddish yellow; remaining segments black; the hypopygium reddish, with whitish pubescence; abdomen shining. Coxæ and legs (the hind pair is wanting) light yellow; tibiæ infuscated by the minute black hair; tarsi blackish; middle and front tibiæ with short spinules. Wings hyaline, the tip and posterior border infuscated; a narrow brown cloud covers the tip of R_1 and reaches into the base of the cell R_{4+5}; subcostal crossvein only a little distance beyond the humeral crossvein; tip of subcostal vein beyond the origin of the radial sector; R_{2+3} terminates in R_1 near its tip; prefurca of media very short. Anal vein complete. Washington.

5. *Apemon nigriventris* n. sp.

Male and female. Length $7\frac{1}{2}$ to $8\frac{1}{2}$ mm. Head, including scape of antennæ, thorax, abdomen including venter, genitalia, and margin of the trochanters subshining black; palpi, coxæ, femora and halteres reddish yellow, tibiæ dull yellow, spurs a little paler, tarsi fuscous. Hairs of thorax, pale yellow, arranged in 3 longitudinal lines and along the lateral margins; hairs on humeri, scattering hairs on venter and hypopygium pale, elsewhere on head, thorax and abdomen black; those on the coxæ and femora pale, on tibiæ and tarsi black, setæ of the former very minute, scarcely differentiated from the hairs. Intermediate antennal joints but little longer than wide. The fore metatarsus of the male 0.75 as long as its tibia, in the female about 0.7; tarsal claws toothed, setose on basal half, empodium brush-like, as long as the claws. Wing of the male very faintly smoky; of the female more distinctly smoky on apical half; veins dark brown; R_{4+5} ends very close to the tip of the costa but noticeably before the apex of the wing; subcosta ends about the length of R_{2+3} distad of the base of the radial sector; the subcostal crossvein is situated about twice its length distad of the humeral crossvein; R_{2+3} makes about a 45° angle and ends in R_1 very close to its apex; petiole of the media is shorter than the coalesced section of the media; the fold-like basal section of this vein is hyaline; anal vein sinuous, and reaches the margin of the wing. Three specimens collected in July by Mr. J. C. Bradley. Selkirk Mts., Rogers Pass. B. C. 4600 ft. altitude; and Prarie Hill, B. C. 5800 ft. altitude.

6. Genus *Platyura* Meigen.

Platyura Meigen, Illiger's Mag. II. 264. 1803; Klass I. 101. 1804. *Zelmira* Meigen, Nouv. Class. Mouches. 16. 1800. (without type).

Head small, ocelli closely approximated, median smallest; palpi 4 jointed; antennæ 2+14 jointed, cylindrical or somewhat compressed, closely sessile. Thorax oval, setose; abdomen with 7 visible segments, depressed apically. Legs long, femora somewhat thickened; tibiæ spurred, setæ very minute. Wings (figs. 84, 85, 86) somewhat broadened, as long or longer than abdomen; costa prolonged beyond the tip of R_{4+5} and ending before the tip of the wing; subcosta ends in the costa, rarely ending free, subcostal crossvein usually present, R_{2+3} very short usually ending in the costa, rarely in R_1; prefurca of media short; anal vein either incomplete or produced to the margin.

Table of species.

a. R_{2+3} ends in R_1; subcostal crossvein wanting (fig. 85); tibiæ each with but one spur. Length 2 mm. West Indies. 1. *parva.*

aa. R_{2+3} ends in the costa, beyond the apex of R_1.

b. Subcostal vein ends noticeably beyond the base of the radial sector.

c. A distinct transverse fascia or band at or near the apex of wing, or wings with several spots.

d. Wing with band; thorax brown, a median stripe on posterior half and sides yellowish, abdomen dusky, bases of segments yellowish, halteres with black knob. Length 10 mm. Washington. 2. *fasciola.*

dd. Wing spotted; length 3 mm. 7. *elegans.*

cc. Apex of wing hyaline or only indistinctly smoky, no band.

d. Apices of abdominal segments black; fore metatarsus longer than its tibia; length 4½ mm. 3. *inops.*

dd. Apices of abdominal segments, yellow.

e. Thoracic vittæ black; fore metatarsus shorter than tibia. 4. *setiger* n. sp.

ee. Thoracic vittæ reddish yellow. Washington State. 5. *lurida.*

bb. Subcostal vein ends opposite or proximad of the base of the radial sector.

c. Wing with several distinct brown spots, tibiæ each with but a single spur.

d. Dorsum black with central stripes, fore metatarsus about equal to tibia in length. West Indies, 6. *pictipennis.*

dd. Thorax opaque brownish black, often with yellow central stripe; sides, pleura and scutellum yellow; fore metatarsus shorter than its tibia. Atlantic States. 7. *elegans.*

cc. Wing with only a single preapical fascia, or wholly uniform in color.

d. Wing without a band or fascia near apex.

e. Mesonotum mainly black or dark brown.

f. Length 2 mm; subcostal crossvein apparently wanting; anal vein not produced to margin; female. Eastern States. 8. *mimula* n. sp.

ff. Length over 3 mm.

g. Subcostal crossvein wanting; thorax and abdomen black; apex of wing smoky; length 6 mm. 9. *melasoma.*

gg. Subcostal crossvein present, situated far proximad of middle of subcosta; anal vein produced to margin.

h. Scutellum, pleura and hind margins of abdominal segments yellow.

i. Metanotum yellow. 10. *pullata.*

ii. Metanotum black; fore metatarsus shorter than tibia. 4. *setiger* n. sp.

hh. Thorax wholly black, except humeral angle and at base of wings; hypopygium small (fig. 92). 11. *nigrita* n. sp.

ee. Predominant color of mesonotum yellow.

f. A blackish spot on the proximal part of hind coxæ and adjacent portion of pleura; abdomen reddish yellow; wing with feebly marked band before the tip; length 8 mm. 12. *notabilis.*

ff. Smaller species differing from the above.

g. R_{2+3} nearly perpendicular to R_{4+5}.

h. Abdomen brownish yellow, with black hair; subcostal vein very short; length 3 to 4 mm. West Indies. 13. *ignobilis.*

hh. Last segment of abdomen black; faint cinereous spot near apex of wing; subcostal vein over two-thirds as long as the basal cell R; length 5 mm. Maine. 14. *fascipennis* var. *sagax* n. var.

gg. R_{2+3} noticeably oblique to R_{4+5}.

h. Length 2 mm; fore metatarsus about half as long as its tibia, male. 8. *mimula* n. sp.

hh. Length over 3 mm.

i. Each tibia with but a single spur; fore metatarsus and its tibia subequal in length; apical margin of abdominal segments black; length 5 to 6 mm. West Indies. 15. *fasciventris.*

ii. Two spurs on each of middle and hind tibiæ.

j. Fore metatarsus about $\frac{5}{8}$ as long as its tibia; coalesced part of the media 2-3 as long as its petiole; anal vein to margin. 16. *moesta* n. sp.

jj. Fore metatarsus at least $\frac{3}{4}$ as long as its tibia.

k. Apex of subcosta as far proximad of the base of the radial sector as the length of the first section of the sector; anal vein to margin; hypopygium with lobe-like forceps (fig. 99). 17. *mendosa.*

kk. Apex of subcosta nearly opposite the base of the radial sector. 18. *mendica.*

dd. Wing with more or less distinct preapical spot or fascia.

e. A blackish spot on proximal part of hind coxæ and adjacent portion of pleura; thorax and abdomen reddish yellow, wing band feeble; length 8 mm. 12. *notabilis.*

ee. Not as above in all particulars.

f. R_{2+3} nearly perpendicular to R_{4+5}.

g. Last abdominal segment wholly fuscous black.

h. Wing spot distinct; length 3.5 mm. Ga. 26. *divaricata.*

hh. Wing spot subobsolete; fore metatarsus is about 0.25 longer than its tibia; length 5 mm. Maine. 14. *fascipennis* var. *sagax,* n. var.

gg. Abdomen dusky.

h. Abdomen of male including last segment slightly dusky; fore metatarsus over 0.4 longer than the tibia; coalesced part of media noticeably longer than the petiole. 19. *subterminalis.*

hh. Fore metatarsus less than .25 longer than the tibia; coalesced part of media shorter or not longer than the petiole; female. 14. *fascipennis.*

ff. R_{2+3} distinctly oblique to R_{4+5}.

g. Subcostal crossvein wanting; blackish species, wing with slight cloud; length 6 mm. 9. *melasoma.*

gg. Subcostal crossvein present.

i. Fore metatarsus longer than its tibia.

j. Fore metatarsus about 1-6 longer than the tibia; subcostal crossvein is near the middle of the subcosta.

k. Coalesced part of media equal to or shorter than the petiole; hypopygium (fig. 98); preapical cloud subobsolete. 20. *diluta.*

kk. Coalesced part of media longer than the petiole; hypopygium (fig. 96). 21. *moerens* n. sp.

jj. Fore metatarsus over a third longer than the tibia; hypopygium (fig. 107).
19. *subterminalis* var. *nexilis* n. var.

ii. Fore metatarsus equal to or shorter than the tibia.

j. Mesonotum mainly yellow; stripes if present, pale, coalesced part of media shorter than the petiole.

k. Anal vein prolonged to margin; hypopygium with lobe-like forceps (fig. 99). 17. *mendosa.*

kk. Anal vein not prolonged to margin; fore metatarsus and tibia subequal; hypopygium robust (fig. 100). 22. *genualis* n. sp.

jj. Mesonotum black or with dark stripes, coalesced part of media usually equal to or greater than the petiole.

k. Fore metatarsus about 1-5 of tibial length shorter than the tibia; subcosta ends about twice the width of the costal cell proximad of the base of the radial sector; length 5-6 mm.
23. *scapularis* n. sp.

kk. Fore metatarsus 0.1 or less shorter than tibia; subcostal vein ends not more than the width of the costal cell proximad of the base of the radial sector; length 8-9 mm.

l. Scape of antennæ and base of some abdominal segments yellowish.
24. *elegantula.*

ll. Scape of antennæ black; abdomen of male mainly black.
25. *tæniata.*

1. *Platyura parva* Williston.

1896. *parva* Williston, Trans. Ent. Soc. London 257.

Male. Length 2½ to 3 mm. Antennæ brownish-yellow, shorter than the thorax. Posterior part of the mesonotum, the

narrow lateral margins, and 3 slender stripes, brown or black; elsewhere the thorax is yellow, save 2 spots on the pleura, and the metanotum for the greater part, which are black. Abdomen cylindrical, black, the venter and immediate base yellowish. Coxæ and legs yellow; the terminal portion of the tibiæ, and the tarsi, brownish; metatarsi about 3-4 of the length of the tibiæ; all the tibiæ with a single spur and without spines. Wings lightly tinged; R_{2+3} enters R_1 near its tip. St. Vincent, Isl.

I have seen a specimen from one of the Lessor Antilles. The ending of R_{2+3} in R_1, the length of the petiole of the media, the absence of the subcostal crossvein (fig. 85) and the possession of but a single spur on each tibia, are characters which combined mark this species as one widely remote from other *Platyura*. It should perhaps be made the type of a new genus.

2. *Platyura fasciola* Coquillett.

1894. *fasciola* Coquillett, Entomol. News. 126 (Ceroplatus).

Female. Length 10 mm. Head including greatly flattened antennæ and large palpi, dark brown; the retracted proboscis, base of the third antennal joint, a small spot beneath each antenna, yellow. Thorax shining brown, a medio-dorsal vitta on posterior half and lateral margins yellow; pleura yellow, a large spot above the middle coxæ and a small one above hind coxæ, dark brown. Scutellum yellow, its base brown, center of metanotum dark brown. Abdomen shining, blackish brown, base of each segment except first, yellow, on second, third and fourth segments prolonged posteriorly is an indistinct dorsal vitta; coxæ and femora yellow, bases of middle and hind femora, and of hind coxæ blackish brown, tibiæ and tarsi brownish yellow. Wings pale yellowish, the apex between tip of R_1 and apex of Cu_1, blackish, apex of Cu, bordered with blackish, this color projecting into the cell of Cu_1 near its middle. Apex of subcostal vein far beyond origin of the radial sector, being opposite origin of M. Subcostal crossvein before middle of the distance between humeral crossvein and tip of the subcostal vein; R_{2+3} very oblique, ending in costa beyond apex of R_1. Knob of halteres black. Washington.

3. *Platyura inops* Coquillett.

1901. *inops Coquillett.* Proc. U. S. Nat. Mus. Bul. 23, 594.

Male and female. Length 4.5 mm. Yellow, an ocella dot and apices of abdominal segments black, most extended on the posterior segments, tarsi yellowish brown; antennæ subcylindrical, the third joint noticeably longer than broad; wings hyaline, a grayish brown spot before apex of R_{4+5}; subcostal vein extending a short distance beyond base of radial sector, subcostal crossvein at about 1-6 of distance from the humeral to apex of subcostal vein, R_{2+3} ending in the costa at about 1-3 of distance from apex of R_1 to apex of R_{4+5}, costa extending nearly midway between apices of R_{4+5} and M_1, cubitus forking beyond base of the radial sector. Delaware Water Gap, New Jersey.

One of each sex from Brattleboro, Vermont, taken in July by Mr. C. W. Johnson, and a single specimen from Ithaca, N. Y., have the coalesced part of the media much shorter than the petiole; fore claws with 2 basal teeth each, one of the teeth slender and about 1-3 as long as the claw; the fore metatarsus 1.5 times as long as its tibia; the hypopygium as figured (fig. 101).

4. *Platyura setiger* n. sp.

Male. Length $5\frac{1}{2}$ mm. Head black, subopaque, palpi and mouth parts, and whole of the antennæ fuscous; intermediate antennal joints about as long as broad. Thorax subopaque, mesonotum with three wide confluent black stripes (in one specimen not confluent), the humeri, lateral stripe to base of wings, and margin of scutellum yellow, the other parts black; the setæ on the thorax arranged in rows, a slender median row, one on each side of this on the division between the dark stripes, and a wider lateral row of rather more conspicuous setæ reaching the base of the wings. Scutellar setæ as strong as those at the base of the wing. Abdomen dusky yellowish, the dorsum of the first segment, basal half of the second, the immediate bases of the remaining segments, the whole of the prominent hypopygium (fig. 103), under side of trochanters, and setæ of abdomen, black. Legs including the coxæ, yellow; tarsi appear dusky owing to the black setulæ. Tibial setæ less than half as

long as the diameter of tibia, several rows on each tibia, six to eight on the fore, eight to twelve on the intermediate, and twelve to fifteen setæ on hind tibia in each row. Tarsal claws with teeth. Fore metatarsus is about .8 as long as the tibia. Wings (fig. 86) hyaline, yellow tinged; veins dusky yellow; subcosta ends opposite or slightly beyond the base of the radial sector, R_{2+3} oblique, coalesced part of the media about half as long as the petiole, anal reaches the margin of the wing. Halteres yellow. Two specimens from Dewatto, Washington, collected by Prof. Aldrich. This species seems to be closely related to *pullata* Coq.

5. *Platyura lurida* Coquillett.

1895. *lurida* Coquillett. Canad. Ent. 199.

Female. Length 6 mm. Head and antennæ black, first two joints of the latter and the mouth parts somewhat yellowish. Thorax, pleura, scutellum, abdomen and legs, pale yellow, the tarsi toward the apex brownish yellow, the thorax marked with three reddish yellow vittæ. Wings hyaline, slightly tinged with yellowish toward the costa, otherwise unmarked; tip of subcostal vein nearly twice the length of the humeral crossvein beyond the base of the radial sector; subcostal crossvein nearly three times the length of the humeral beyond the latter; R_{2+3} oblique, ending its own length beyond the tip of R_1; anal vein reaches the wing margin. Washington.

6. *Platyura pictipennis* Williston.

1896. *pictipennis* Williston. Trans. Ent. Soc. London. 257.

Male and female. Length 3-3½ mm. Front and face yellowish or brownish, the palpi darker colored. Antennæ brownish, about as long as the thorax, moderately compressed. Thorax yellow; the dorsum, save a yellowish spot or stripe in the middle, and the yellow lateral margins, brown or black; disk and sides of the metanotum brown. Abdomen brown or blackish-brown, the posterior margin of each segment yellow. Legs, including the coxæ, yellow, the distal portion of the tibiæ, and the tarsi, brownish; tibiæ without spines; front tibiæ and metatarsi of nearly equal length; the hind metatarsi shorter than their tibiæ; all the tibiæ with a single spur. Wings nearly hyaline, with markings as follows: a large brown spot, reaching

from the costa to the cubitus, over the prefurca; another of about the same size in the outer part of the cell R_{4+5}; and smaller ones in all the cells on the posterior side of the wing; R_{2+3} runs into the costa a little beyond the tip of R_1. St. Vincent Isl., W. I.

7. *Platyura elegans* Coquillett.

1895. *elegans* Coquillett, Proc. Acad. Nat. Sc. Phila. 307.

Male and female. Length 3.5 mm. Head black, lower part of front and the face yellow; antennæ black, the two basal joints yellow; proboscis yellow, its apex and the palpi black. Dorsum of thorax opaque brownish black, the sides, pleura and scutellum, yellow; metanotum brown, this color extending upon the pleura to the middle coxæ. Abdomen shining brownish-black, the first segment, both ends of the second, apices of the third and fourth and the whole of the fifth, yellow; first five ventral segments also yellow. Halteres and legs yellow; tibiæ destitute of bristles. Wings grayish hyaline, marked with two irregular brown crossbands and with two brown spots; the first band begins at R_1 before its tip, is interrupted between the branches of the cubitus, and stops before reaching the hind margin of the wing, its posterior portion scarcely half as wide as the costal part; the second band starts from the tip of R_{2+3} and stops at Cu_1 a short distance before its tip, where the band is scarcely one-fifth as wide as at the costa; midway between these two bands is a large brown spot reaching from Cu_1 to the hind margin of the wing at the tip of the posterior branch; a brown cloud on R_{2+3}, this branch terminating at twice its length beyond the tip of R_1. Georgetown, Florida, May; North Carolina.

I have seen specimens from Ithaca and Yonkers, N. Y.; Wisconsin and North Carolina. In the northern specimens the middle of the mesonotum is yellow, leaving two distinct dark lateral stripes; agreeing in this respect with *pictipennis* which appears to be closely related if not identical. In the Carolina specimen the middle of the mesonotum is only slightly paler brown than the sides. The fore metatarsus is about one-fifth shorter than the tibia, and the subcostal vein ends about opposite the base of the radial sector.

8. *Platyura mimula* n. sp.

Male. Length 2 mm. Head fuscous, scape of antenna and mouth parts yellowish; flagellum of antennæ dusky yellow. Thorax dusky yellow, humeri and lateral margin of mesonotum somewhat paler, metanotum brownish. First four abdominal segments dusky yellow, posterior margin slightly paler; remaining segments as well as the hypopygium dark brown, subopaque. Hypopygium about as wide as the last visible abdominal segment, the superior forceps subtriangular. Legs yellow, tarsi slightly darker, spurs black; fore metatarsus half as long as its tibia. Wings hyaline, veins dusky yellow; the subcosta ends in the costa before the base of the radial sector; the subcostal crossvein indistinct, R_{2+3} oblique, coalesced part of the media about two-thirds as long as the petiole, anal vein apparently reaches the margin. Halteres yellowish. From Polk Co., Wisconsin.

Two females from Hampton, N. H., collected in June by Mr. S. A. Shaw are marked as follows: The head, thorax and abdomen dark brown, subshining; the palpi, scape of antennæ, pleura, sterum, venter and narrow posterior margin of the abdominal segments more yellowish; wings more cinerous; anal vein does not reach the margin; in other respects, venation and leg measurements as in the male.

9. *Platyura melasoma* Loew.

1869. *melasoma* Loew, Berl. Ent. Zeitschr. XIII. 135.

Female. Length 6 mm. Black. Anterior and lateral margins of the mesothorax and margin of the scutellum, yellowish; the scutellum itself fuscous black. Abdomen black and with black pile, the first segment more fuscous. Legs and coxæ pale, tibiæ dusky yellow, tarsi blackish. Wings subhyaline, tinged with dusky yellow, darker on the costal margin; subcostal vein ends in the costa opposite the base of the radial sector, the subcostal crossvein wanting; the rather long and oblique R_{2+3} ends in the costa not far distad from the tip of R_1. Length of wing 5 mm. Halteres yellow. Recorded from D. C.

To this description I may add that the preapical wing cloud is short but distinct; the coalesced part of the media is equal or

greater than the petiole. The legs in the type specimen at Cambridge are more or less broken.

10. *Platyura pullata* Coquillett.

1904. *pullata* Coquillett, Proc. Ent. Soc. Wash. VI, 171.

Female. Length $3\frac{1}{2}$ mm. Black, the mouth parts, sides of mesonotum, the scutellum, metanotum, hind margins of the abdominal segments, the genitalia, venter, coxæ, femora, tibiæ, bases of tarsi, and the halteres, yellow; hairs and bristles chiefly black. Thorax thinly gray pruinose, the abdomen polished. Wings hyaline, apex of the subcosta opposite the base of the radial sector, the subcostal crossvein near one-fourth of distance from the humeral to the apex of the subcosta, R_{2+3} very oblique terminating about its own length beyond the apex of R_1, anal vein prolonged to the wing margin. Claremont, Calif.

11. *Platyura nigrita* n. sp.

Male. Length $4\frac{1}{2}$ mm. Head black, palpi, mouth parts, antennæ including scape, fuscous, intermediate antennal joints longer than broad. Thorax subopaque, brownish black, the collar, humeral spots and narrow lateral margin of mesonotum yellowish; scutellum brownish, sparsely setose; the three narrow longitudinal rows of setulæ extending nearly to scutellum and a wider row on each lateral margin extending to base of wing. Abdomen brownish black, subshining; posterior margin of some segments on dorsum faintly on venter more distinctly yellowish. Hypopygium (fig. 92) small, black. Legs yellow, tarsi apparently more dusky due to setulæ; middle and hind tibiæ each with several rows of very short and small setæ, 6 to 10 in a row; fore claws with 2 teeth near base; fore metatarsus about 2-3 as long as its tibia. Wing hyaline, apex very slightly darker, veins yellow except the radius which is brown; subcosta ends before the base of the radial sector; R_{2+3} oblique, coalesced part of media about half as long as the petiole, anal vein reaches the margin of the wing. Halteres yellow. Taken at Friday Harbor, Washington, in June by Professor Aldrich.

12. *Platyura notabilis* Williston.

1894. *notabilis* Williston. Kansas Univ. Quart. II. 59.

Male. Length 8 mm. Antennæ black, not compressed, a half longer than the thorax; first two joints yellow. Face and lower part of the front reddish yellow; epistoma projecting, beak-like; palpi and proboscis yellowish; front, except the lowermost portion, black. Thorax yellow, the mesonotum somewhat reddish; a blackish spot on the proximal part of the hind coxæ and the adjacent portion of the pleura; a fringe of black hairs just above the root of the wings. Abdomen reddish yellow, with short, black hairs. Legs yellow, the tibiæ and tarsi infuscated or blackish; front tibiæ bare, the middle and hind pairs with short spinules. Wings yellowish, the tip infuscated; a feebly marked brownish band before the tip; the subcostal vein terminates at the origin of the radial sector; R_{2+3} joins the costa just beyond the insertion of R_1. Anal vein complete. Washington.

13. *Platyura ignobilis* Williston.

1896. *ignobilis* Williston. Trans. Ent. Soc. London. 257.

Male. Length 3 to 4 mm. Base of antennæ and the face yellow; front and occiput blackish. Thorax reddish-yellow, the dorsum with black hair arranged in distinct rows. Scutellum and metanotum brownish. Abdomen brownish-yellow, with black hair. Legs yellow, the tarsi infuscated; front metatarsi not more than three-fourths the length of the tibiæ. Wings uniformly subinfuscated; R_{2+3} is nearly rectangular, terminating in the costa; the subcostal vein is very short. St. Vincent Isl.

14. *Platyura fascipennis* Say.

1824. *fascipennis* Say. Long's Expedition. App. II. 360.

Female. Length $4\frac{1}{2}$ mm. Head yellow; center of vertex black. Mesonotum yellow, unmarked or at most with only a faint indication of deeper yellow stripes. Abdomen fuscous, slender at the base, gradually broadening posteriorly; venter dusky, posterior and lateral margins inclined to dusky yellow. Legs and coxæ pale, tarsi infuscated; fore metatarsus about one and one-fifth times, the second fore tarsal joint is about

two-thirds times the tibia in length. Wing yellowish with a brown band near the tip; the coalesced part of the media and its petiole subequal in length; subcosta ends noticeably before the base of the radial sector; R_{2+3} nearly perpendicular to R_{4+5}; the subcostal crossvein is placed slightly proximad of the midpoint between humeral crossvein and apex of the subcosta; anal vein not produced to the margin. Halteres yellow. One specimen taken at Montreal in July.

Var. *sagax* n. var. Male. Length 5 mm. Differs from the female in having a paler abdomen, spot on wing less conspicuous and relatively longer legs. Antennæ and front except lateral margin, dark brown; occiput, face, palpi and scape of the antennæ yellow. Antennæ short, the intermediate joints no longer than wide, the hairs black. Mesonotum yellow with four narrow brown stripes, scutellum, pleura and sternum yellow, metanotum slightly infuscated; setæ of the mesonotum, pleura and sternum yellow; metanotum slightly infuscated; thoracic setæ short, black, and not arranged in longitudinal rows. Abdomen yellow, the base of the dorsum of the penultimate and the whole of the ultimate segment brown; hypopygium (fig. 102) mainly brown. Coxæ and legs yellow; tarsi apparently darker; claws each with a slender basal tooth which is over half as long as the claw; fore metatarsus is about one and one-fifth, the second fore tarsal joint about 0.9 as long as the tibia. Wings hyaline, yellow tinged, apex of R_{4+5} and costa with a faint cloud; subcosta ends noticeably proximad of the base of the radial sector; subcostal crossvein indistinct; coalesced part of the media about equal to the petiole; R_{2+3} perpendicular to R_{4+5}; anal vein does not appear to reach the margin. Halteres yellow. Capens, Maine, taken in July, by Mr. C. W. Johnson.

This variety differs slightly from *subterminalis* in the relative length of metatarsi, petiole of media, and in form of hypopygium.

15. *Platyura fasciventris* Williston.

1896. *fasciventris,* Williston, Trans. Ent. Soc. London. 258.

Female. Length 5 to 6 mm. Head and basal joints of the antennæ reddish-yellow, the distal joints of the antennæ black or brownish-black; the oval ocellar spot black. Front broad,

the orbits emarginate. Thorax reddish-yellow; the dorsum red, with four brown stripes, sometimes feebly marked or obsolete. Abdomen red, or reddish-yellow, with a black band of variable width at the posterior part of each segment; venter yellow. Coxæ and femora light yellow; tibiæ yellow, the tarsi brownish; tibiæ without spines; metatarsi about as long as their tibiæ; all the tibiæ with a single terminal spur. Wings uniformly brownish; R_{2+3} oblique, terminating in the costa. The antennæ are about as long as the dorsum of the thorax. St. Vincent Isl.

16. *Platyura moesta* n. sp.

Male. Length 4 mm. Head black; antennæ fuscous, scape and mouth parts yellow. Thorax dull yellow with five longitudinal lines of black setulæ, lateral lines widest, setulæ longest over base of wings and upon scutellum; metanotum slightly brownish. Basal half or two-thirds of each abdominal tergite black, whole of remaining tergites black, venter yellow except for the black apical margin of each segment; hypopygium (fig. 106) brown. Legs yellow, tibiæ and tarsi apparently darker; fore metatarsus about 5-8 as long as the tibia; each claw with three teeth. Wing hyaline, slightly cinereous; veins yellow, the heavier veins more dusky; subcosta ends proximad of base of the radial sector, the crossvein is proximad of the first third of distance from the humeral crossvein to apex of the subcosta; R_{2+3} oblique and ends about one-fourth of the distance from tip of R_1 to tip of R_{4+5}; coalesced part of the media is about 2-3 as long as the petiole, anal vein produced to the wing margin. Halteres yellow. Taken August 2 at Longmire's Springs, Mt. Rainier, Washington, by Professor Aldrich.

17. *Platyura mendosa* Loew.

1869. *mendosa* Loew, Berl. Ent. Zeitschr. XIII. 135.

Male. Length 3.5 to 4 mm. Deep yellow, antennæ except the scape, and abdomen dusky; tarsi apparently fuscous; fore metatarsus about one-sixth shorter than the tibia. Wing yellowish, cinereous tinged, veins yellowish; apex of the R_{4+5} and the costa with an indistinct cinereous cloud; subcosta ends in the costa about two-thirds of the length of the basal cell. Subcostal crossvein is proximad of the middle of the subcosta;

R_{2+3} oblique; coalesced part of the media about a third as long as the petiole; anal vein produced to the margin; the distance from the humeral crossvein to the base of the radial sector is about one-fourth of the distance to the tip of the wing. Halteres yellow. The hypopygium is robust (fig. 99) the forceps lobe-like. Ithaca, N. Y.; Capens, Maine, July (C. W. Johnson); Knoxville, Tenn. My specimens are like the type in the museum at Cambridge, Mass., which is recorded from the District of Columbia.

18. *Platyura mendica* Loew.

1869. *mendica* Loew. Berl. Ent. Zeitschr. XIII. 135.

Female. Length 3 mm. Yellowish, legs paler, tarsi more dusky. Antennæ rather short, fuscous, the basal joints yellowish. The base of each abdominal segment subfuscous. Wings uniformly yellowish with a tinge of cinereous, veins fuscous; subcostal vein ends in the costa a little proximad of the base of the radial sector; R_{2+3} rather long and oblique in position; length of wing 3 mm. Halteres yellow. Recorded from New York.

A female specimen from Hampton, N. H., collected by Mr. S. A. Shaw is 4 mm. long; thorax with indications of three pale brown confluent stripes; fore metatarsus one-fifth shorter than the tibia; subcostal vein ends nearly opposite base of the radial sector; the subcostal crossvein is situated about the length of the humeral crossvein beyond the latter; the tip of R_{4+5} and costa very faintly tinged with brown; coalesced part of media about half as long as its petiole; anal vein prolonged to the margin. Excepting for the brown tinge near tip of wing these characters are also possessed by the type in the museum at Cambridge.

A female specimen from Blue Hills, Mass., collected by Mr. C. W. Johnson, in July is similar but thoracic stripes are more distinct, the brown on the abdomen more extended, and without a suggestion of brown near tip of wing.

Some defective specimens from Wisconsin, Oregon and Ithaca, N. Y., seem also to belong here.

19. *Platyura subterminalis* Say.

1829. *subterminalis,* Say. Journ. Ac. Nat. Sc. Phila. IV. 152.

Male and female. Length 3½ to 4 mm. Body entirely pale honey yellow; antennæ excepting the two basal joints, fuscous; ocelli with a small black areola; thorax immaculate; tergum a little more dusky than the thorax. Tibiæ and tarsi dusky. Wings with a slight yellowish tinge, a blackish subterminal band, occupying on the costal margin all the space between R_{2+3} and R_{4+5} and extending to the posterior margin; R_{2+3} is perpendicular to the costa.

In two male specimens from Ithaca, N. Y., the hypopygium is as shown in figure 104; the fore metatarsus is about 1.4 times, the second fore tarsal joint 7-8 times the fore tibia in length; the subcosta ends proximad of the base of the radial sector; the subcostal crossvein is situated proximad of the mid distance of humeral crossvein and tip of the subcosta; R_{2+3} is perpendicular to R_{4+5}; the petiole of the media is less than half as long as the coalesced part; the anal vein does not reach the margin.

Var *nexilis* n. var. Differs from the typical form in having R_{2+3} oblique to R_{4+5}; the coalesced part of the media and the petiole subequal and a slight difference in the hypopygium (fig. 107). One specimen from Polk Co., Wisconsin.

20. *Platyura diluta* Loew.

1869. *diluta,* Loew. Berl. Ent. Zeitschr. XIII. 134.

Male and female. Length 5 mm. Luteous. Antennæ short, fuscous or subfuscous. The immediate bases of the abdominal tergites sometimes fuscous; the last visible segment and the hypopygium of the male fuscous. Legs pale, tarsi dusky. Wings yellowish, with a short, dilute, subapical fascia; R_{2+3} short, oblique. Halteres yellow. Recorded from D. C.

I have seen specimens from New York, North Carolina, Wisconsin and Vermont. The hypopygium is shown in figure 98. The fore metatarsus is about 1-6 longer, the second fore tarsal joint about 1-6 shorter than the tibia. The subcosta ends in the costa proximad of the base of the radial sector; the subcostal crossvein is slightly proximad of the midpoint between the humeral crossvein and the tip of the subcosta; R_{2+3} oblique;

the coalesced part of the media is about 2-3 as long as the petiole; the anal vein does not reach the margin. These characters are also possessed by the type in the Cambridge museum.

21. *Platyura moerens* n. sp.

Male and female. Length 5 mm. Head, palpi, and scape yellow; the middle of the front surrounding the ocelli and the flagella brown. Thorax wholly yellow, with only faint indications of darker lines; setæ black, not arranged in longitudinal lines. Abdomen yellow, the immediate bases of the segments more or less brownish, especially in the female; hypopygium as figured (fig. 96). Legs yellow, tarsi appearing darker due to black setulæ; fore metatarsus 1.14, the second tarsal joint 0.94 times the tibia in length. Wings (fig. 84) yellowish hyaline; the subcosta ends in the costa before the base of the radial sector; the subcostal crossvein is about in the middle of the subcosta; R_{2+3} is oblique; coalesced part of the media about one-third longer than the petiole; anal vein not produced to the margin; a pale brown diffuse preapical fascia extends from between R_{2+3} and apex of the costa to beyond the media, quite faint posteriorly. Halteres yellow. Friday Harbor Washington, July, from Professor Aldrich.

22. *Platyura genualis* n. sp.

Male and female. Length 5½ mm. Head and mouth parts yellow; the flagellum and a spot covering ocelli and extending to the occiput, brown. Thorax yellow with only faint indications of ferruginous stripes; metanotum with brownish spot; setæ of the mesonotum black, very few in number except at the base of the wing and on posterior margin where they are longer and more conspicuous. Abdomen, including venter, yellow; basal third or fourth of segment with a brown fascia which may be more or less emarginate; setæ few, black; hypopygium stout, (fig. 100) yellow, setæ black. Legs yellow, tarsi apparently fuscous; fore metatarsus subequal to, second fore tarsal joint about two-thirds as long as its tibia; empodium small, pectinate, claws each with two stout teeth. Wing hyaline, cloud at apex of costa extends indistinctly to M_2; subcosta ends before the base of the radial sector; the subcostal crossvein is

placed near the middle of the subcosta; R_{2+3} is oblique and ends in the costa; coalesced part of the media is one-third shorter than the petiole; anal vein is not produced to the margin. Halteres yellow. Pine Lake, Wisconsin (W. M. Wheeler); Black Mts., N. C. (Beutenmueller); Knoxville, Tenn.

23. *Platyura scapularis* n. sp.

Male. Length 5 to 6 mm. Head piceous, front subshining black; the posterior eye margin, scape of antennæ and clypeus rufo-piceous; flagellum fuscous, palpi and proboscis yellowish. Mesonotum black subopaque, collar, scutellum, humeri, and lateral margins to the base of the wings, articulations at base of wing, junction of scutellum and metanotum, yellowish; the metanotum including the prominent lateral lobes, pleura, and sternum rufo-piceous. Setæ of mesonotum, black, short, and apparently not arranged in rows, but uniformly distributed, most conspicuous at the base of the wing; those on the scutellum numerous but short. Abdomen subopaque black, some of the ventral segments more or less yellowish, particularly on the posterior margins; hypopygium (fig. 105) black. Legs and coxæ yellow, the middle and hind coxæ sometimes, and tarsi and spurs, fuscous; the black setulæ of coxæ conspicuous at tip; claws toothed; fore metatarsus nine-tenths, the second fore tarsal joint two-thirds as long as the tibia. Wing somewhat smoky, apex from before the tip of R_{4+5}, brown; subcosta ends in the costa before the base of the radial sector; the subcostal crossvein is situated proximad of the middle of the subcosta; R_{2+3} slightly oblique, coalesced part of the media longer than the petiole in length; anal vein not reaching margin. Halteres yellow. Kendrick, Idaho, and Stanford University, Calif. (Prof. Aldrich).

Female, and immature male. The humeri, lateral margins of mesonotum, base of scutellum, and posterior margins of the abdominal segments yellow. Females from Friday Harbor and Moscow, Idaho. (Prof. Aldrich).

24. *Platyura elegantula* Williston.

1900. *elegantula* Williston. Biol. Centr. Amer. 1. 218.

Female. Length 8 mm. Head yellow, the upper portion, to a line just in front of the ocelli, shining black. Palpi and tip of the proboscis brownish. Antennæ brown, the first two joints yellow; in length equal to that of the mesonotum. Mesonotum yellow, with three coalescent black stripes, of which the lateral ones are abbreviated in front; just above the root of the wings the more abundant black hair gives the appearance of a slender black spot. Pleura yellow, the mesosternum and the lower part of the metasternum brown. Metanotum brown, the sides silvery in some lights. Scutellum blackish. Abdomen brownish; the anterior part of the first, third and fourth segments reddish yellow; venter almost wholly of the latter color. Coxæ and femora yellow; tibiæ and tarsi brownish or blackish. Wings strongly tinged with brownish-yellow, the distal portion clouded with brownish; R_{2+3} a little shorter than the section of the costa beyond the tip of R_1; subcostal vein strong, terminating nearly opposite the origin of the radial sector; prefurca of the media a little more than half the length of the first section of the radial sector. Mexico, Omilteme in Guerrero 8000 feet.

A specimen from Arizona, perhaps immature, has vertex and abdomen yellowish brown; thoracic stripes brown; palpi and scutellum yellowish; fore metatarsus is about .95 as long as the tibia; subcosta ends slightly before the base of the radial sector; the subcostal crossvein is midway between the humeral crossvein and the tip of the subcosta; R_{2+3} is quite oblique; the coalesced part of the media is about a third longer than the petiole.

25. *Platyura tæniata* Winnertz.

1863. *tæniata* Winnertz Verh. zool.-bot. Ges. Wien. XIII. 701.

Male and female. Length 8 to 9 mm. Reddish; antennæ, front and vertex fuscous or subfuscous; thorax with black stripes; abdomen of the male fuscous, with first segment reddish; of the female sordidly yellowish brown, the segments with fuscous posterior margins. Legs reddish, tarsi fuscous. Wings cinereous, with a fuscous subapical fascia. Fore metatarsus about a twelfth shorter than the tibia. Subcostal

vein ends in the costa opposite the base of the radial sector; subcostal crossvein proximad of the middle of the subcosta; R_{2+3} oblique; anal vein strong but does not quite reach the wing margin. This European species has been recorded from New Jersey.

26. *Platyura divaricata* Loew.

1869. *divaricata,* Loew. Berl. Ent. Zeitschr. XIII. 134.

Male. Length 3.2 mm. Luteous. Flagellum of the antenna rather short, fuscous. Abdomen wholly yellow except for the small terminal segment which is fuscous, hypopygium blackish. Wings with yellowish tinge, apical third of wing cinerous fuscous, extreme tip cinereous; subcosta ends in the costa proximad of the base of the radial sector; subcostal crossvein slightly proximad of middle of subcosta; R_{2+3} nearly perpendicular to R_{4+5}; cell M_1 wider than in *P. subterminalis;* coalesced part of the media equal or slightly greater than the petiole; anal vein does not quite reach margin of the wing. Length of wing 3.2 mm. Fore metatarsus about .3 longer than its tibia. Recorded from Georgia. Described from the type specimen in the Museum at Cambridge, Mass.

5. Subfamily *Macrocerinæ.*

Macrocerinæ, Winnertz. Verh. zool-bot. Ges. Wien. XIII. 675. 1863.

This subfamily differs from the *Ceroplatinæ* primarily in having extremely long antennæ, often much longer than the body. There is but one living genus.

Genus *Macrocera* Meigen.

? *Euphrosyne* Meigen, Nouv. classif. des mouches. 16. 1800, Doubtful type.

Macrocera, Meigen, Illiger's Mag. II. 261. 1803; Klass. I. 1804.

Head broad, oval; eyes oval, slightly emarginate; the anterior median ocellus smaller than the laterals; palpi four jointed; antennæ 2+14 jointed, often much longer than the body. Thorax highly arched; abdomen depressed, with seven visible segments. Legs long and slender, the fore pair much shorter; tibial setæ wanting or very minute; spurs small. Wing (fig. 90)

broad, usually longer than abdomen; subcosta ends in the costa; subcostal crossvein present, basal in position; costa produced beyond the tip of R_{4+5}; R_{2+3} oblique, and often sinuous, ending in the costa; the basal section of the media usually present, though delicate and fold-like, dividing the basal cell, coalescing with the radial sector before the crossvein, differing in this respect from *Apemon* and *Hesperodes* where the coalescence takes place distad of the crossvein; anal vein more or less sinuous, and reaching the wing margin; hypopygium (figs. 93, 94) consists of simple forceps resembling those of *Apemon*.

Table of species.

a. Apex of wing hyaline.
  b. A distinct spot covering petiole of the media.
    c. Length 4 to 5 mm; thoracic stripes and bases of abdominal segments brown.
      d. With a preapical and a central spot on wing. 1. *diluta.*
      dd. No preapical spot. 2. Specimen from Wyo.
    cc. Length 3 mm; abdominal fascia subobsolete; apex of R_1 thickened. 3. *inconcinna.*
  bb. No spot covering petiole of media, or at least very indistinct.
    c. Apex of R_1 much thickened, the costa thickened from apex of R_1 to that of R_{2+3}; tip of R_{2+3} four times as remote from tip of R_{4+5} as from R_1. 4. A defective specimen from Pine L. Wis.
    cc. Apex of R_1 not distinctly thickened. 5. *immaculata.*

aa. Apex of wing dusky.
  b. With a preapical as well as an apical band on the wing.
    c. Abdomen luteous, apex blackish.
      d. Wing with four irregular fasciæ; the first extending from apex of the subcosta to the anal angle. 6. *nebulosa.*
      dd. No fascia extending back from apex of subcosta; R_1 not thickened. 7. *hirsuta.*

cc. Apex of each abdominal segment blackish; distance from tip of R_{2+3} to R_{4+5} over twice as great as from R_1 to R_{2+3}; wing with two fascia connected with each other along the veins and two smaller spots.

d. Thorax not striped. 8. *formosa.*

dd. Thorax with stripes.

8a. *formosa,* var. *indigena* n. var.

bb. With but a single cloud on apex of wing, no preapical fascia.

c. Apex of R_1 thickened.

d. Antennæ of male four times, of female at least twice the length of the body.

e. Thoracic stripes wanting or but feebly indicated. 9. *clara.*

ee. Thoracic stripes brown. 10. *concinna.*

dd. Antennæ of female less than one and one-half times the length of the body. 11. Sp.

cc. Apex of R_1 not thickened; distance from R_1 to $_{2+3}$ about three-fourths as great as from R_{2+3} to R_{4+5}. 12. *geminata* n. sp.

1. *Macrocera diluta* Adams.

1903. *diluta,* Adams. Kas. Univ. Science Bulletin II. 22.

Male: Yellow, shining; antennæ, except base, two stripes on occiput, three fascia on mesonotum, the central one joining two narrow ones coming from base of wings, three spots on pleura, lower half of metanotum, base of abdominal segments from the third, with hypopygium wholly, small spot on base of middle and posterior coxæ, tips of femora and tibiæ, dark brown; wings hyaline, fascia near central part dark brown, a small fuscous spot on anterior margin about midway between tip of R_{2+3} and apex of wing, not reaching the media.

Female: Agrees with the male, except that all of the abdominal segments, without the first, have the base dark brown; the subapical spot of wing is larger, crossing M_1. Length 5 mm.; antennæ, 7 mm. Arizona, August.

2. *Macrocera sp.*

Female. Length 4 mm. Antennæ partly missing; the first flagellar joint about as long as the second fore tarsal joint. Color reddish yellow, head infuscated; three wide black thoracic stripes; basal half of each abdominal segments blackish, last segment black; venter mainly yellowish; legs yellow, tarsi infuscated; fore metatarsus about .6, second tarsal joint about .3 as long as the tibia. Wing hyaline; medium brown band extends from apex of R_1 diagonally proximad to the posterior branch of the cubitus filling the space traversed by the petiole of the media; apex of the wing at the tip of R_{4+5} slightly yellowish; apex of R_1 slightly thickened; R_{2+3} ends nearly midway between apices of R_1 and R_{4+5}. One defective and apparently discolored specimen from Little Wind River, Wyoming, taken in September by W. M. Wheeler.

3. *Macrocera inconcinna* Loew.

1869. *inconcinna* Loew. Berl. Ent. Zeitschr. XIII. 133.

Female. Length 3mm. Yellowish, thoracic stripes and abdominal fasciæ indistinctly pale brownish. Antennæ over one and one-half times as long as the body; the flagellum black. Legs pale yellowish, tarsi deep fuscous. Wing cinereous, toward the tip and toward the posterior margin with longer pile and a little more deeply cinereous; R_1 thickened at the apex; R_{2+3} short, oblique; on the disk with a large subfuscous spot, extending from a fuscous longitudinal line which lies in the cell R_1 to Cu_2; also a faint cuneate spot in the basal cell R; length of the wing 4 mm. Halteres yellow. Recorded from the District of Columbia. In the type specimen the apex of R_{2+3} is close to tip of R_1 and widely remote from R_{4+5}, as in *M. clara.*

4. *Macrocera sp.*

Two defective specimens from Pine Lake, Wisconsin, collected by Prof. W. M. Wheeler, resemble *immaculata* and *inconcinna* in some respects but differ from each. The petiole of the media is surrounded by a very faint cloud; the subcosta ends about opposite the coalesced part of the media; R_1 is thickened at the tip and ends less than the length of the petiole of

the media before the tip of R_{2+3} which is short but quite oblique. The antennæ are yellow but are infuscated beyond the third joint. Most of the legs, greater part of the antennæ and abdomen are wanting in both specimens.

5. *Macrocera immaculata* Johnson.

1902. *immaculata,* Johnson. Canad. Ent. XXXIV. 240.

Male and female. Length 5 mm. Head yellow, vertex brownish; antennæ dark brown, the 2 basal joints yellow. Thorax dark yellow, with the anterior margin and humeri light yellow. Abdomen dark brown, shining, with a wide yellowish posterior margin on each segment. Legs yellow, slightly brownish at the tips of the femora, tibiæ and tarsi; legs and abdomen in the male with fine black hairs, which are less conspicuous in the female. Wings yellowish hyaline, with a slight brownish stigma and very fine hairs. The antennæ and posterior legs each about double the length of the body. Pa. and N. Y. (June).

6. *Macrocera nebulosa* Coquillett.

1901. *nebulosa,* Coquillett, Proc. U. S. Nat. Museum XXIII. 594.

Male and female. Length 4 to 5 mm. Yellow, the antennæ except the base, three large spots on the pleura, knobs of halteres bases of abdominal segments two to five and whole of abdomen beyond the fifth segment in the male, the base of each segment except the first in the female, also the tarsi, dark brown; body polished; wings bare, hyaline, marked with four irregular brown fasciæ; the first begins at apex of subcostal vein and extends to the anal angle; the second extends from apex of R_1 to apex of the anal, and is almost, or quite, interrupted in the medial cell; the third extends from R_{2+3} to apex of Cu_1, while the last one borders apex of wing and is connected with the preceding one along R_{4+5} and both branches of the media. Recorded from New Hampshire and New Jersey.

7. *Macrocera hirsuta* Loew.

1869. *hirsuta,* Loew, Berl. Ent. Zeitschr. XIII. 132.

Male. Length 5.2 mm. Yellowish, with long black pile. Vertex subfuscous; antennæ scarcely one and one-half times as

long as the body, blackish apically. Stripes on mesonotum and spots on the pleura subfuscous; abdomen blackish apically; hypopygium blackish. Coxæ yellow, posterior pairs fuscous at the apex, pile black; legs pale, tarsi subfuscous. Wings yellowish with light cinereous tinge, apically and posteriorly with rather long pile; a rather large central spot, fuscous; a complete subapical fascia and apex of wing, fuscous-cinereous; apex of R_1 not thickened; R_{2+3} very long and bent down, length of wing 5 mm. Halteres yellow. Recorded from the District of Columbia.

In the type specimen the distance from R_1 to R_{2+3} is about 1-3 or 1-4 as great as from R_{2+3} to R_{4+5}, and the bands at apex of wing are not connected with each other by clouds along the veins.

8. *Macrocera formosa* Loew.

1866. *formosa* Loew, Berl. Ent. Zeitschr. X. 6.

Male and female. Length 4 mm. Pale yellow. Antennæ yellow, darkened apically. Thoracic stripes wholly lacking or but faintly indicated. Posterior margin of each abdominal segment black, the last three in the male sometimes wholly black, forceps yellow. Legs pale, tips of the middle and hind femora black, of hind tibiæ subfuscous, tarsi subfuscous, darker towards the tip. Wing hyaline, apically and posteriorly with longer pile; a minute blackish spot near the base, a large spot on the middle extending from the costa to the cubitus; apex with two fasciæ, the first subapical, arcuate, the second apical; these bands coalescing on the costa and along the course of the veins. Recorded from New York.

Var. indigena, n. var. Differs from Loew's type specimen in having three distinct thoracic stripes which are usually brown, though in one specimen is almost black. The hypopygium is dusky yellow in the paler specimens, but is usually dark brown.

Male. Head and mouth parts yellow, vertex brown, antennæ yellow, infuscated toward the tip, about one and two-thirds times the length of the insect; mystax black. Thorax yellow with three dark brown stripes on mesonotum; sternum, metanotum and a spot on pleura near base of wing brown; setæ black; scutellum pale yellow with transverse row of small black setæ.

The first abdominal segment, the apices of the second, third, fourth, fifth, and the whole of the remaining segments brown, both dorsally and ventrally; hypopygium (fig. 93) usually dusky, setæ black, forceps with the two terminal teeth closely approximated. Coxæ and legs yellow, tips of middle and hind coxæ and tarsi infuscated; fore metatarsus .8 as long as its tibia, the second fore tarsal joint $\frac{2}{3}$ as long; pulvilli bushy, the hairs clavate, claws simple. Wings hyaline, hairy, especially towards the apex, veins brownish yellow; a brown cloud covers the petiole of the media, extending anteriorly reaching the subcosta and posteriorly to Cu_2, more or less interrupted in the second medial cell; the basal section of the radial sector with a brownish cloud; a narrow preapical fascia extends from the tip of R_2+_3 to beyond Cu_1, more conspicuous where intersected by a vein, and a broad apical band, separated from preapical fascia by a hyaline space as wide as this fascia; the subcosta ends about opposite the coalesced part of the media; R_1 is strong but not thickened at the apex; R_2+_3 is very oblique and somewhat longer than the petiole of the media, costa produced beyond the tip of R_4+_5 as far as the length of the M-Cu crossvein; anal vein strong, produced to the margin. Halteres yellow.

Female. Like the male, but the antennæ are only about one-sixth longer than the body and the brown fasciæ of the abdomen are more extended. Several specimens from Ithaca, New York.

9. *Macrocera clara* Loew.

1869. *clara* Loew, Berl. Ent. Zeitschr. XIII. 133.

Male and female. Length $3\frac{1}{2}$ to 4 mm. Slender, pale yellowish, pile of the body pale. Antennæ slender, in the male nearly four times, in the female nearly three times as long as the body, scape yellowish, flagellum fuscous. Thorax unmarked; abdomen with long pale pile; each segment fuscous at the base. Coxæ and legs pale yellow, tarsi subfuscous toward the tip. Wings hyaline, apically and posteriorly with long pile; apex of R_1 thickened and infuscated, joined with the radial sector by a fuscous spot; a central fuscous spot interrupted anteriorly at the radial sector, extends posteriorly subobsoletely along Cu_2 to the margin; apex of wing widely fuscous; R_2+_3 short, pale,

oblique. Halteres yellow. Recorded from the District of Columbia.

To the above description may be added that between R_1 and the radial sector there is a thickening of the wing membrane simulating a longitudinal vein (fig. 90); fore metatarsus over two-thirds, the second foretarsal joint one-third as long as the tibia; front tibiæ suddenly dilated at their tip; thoracic stripes sometimes feebly indicated; hypopygium similar to that of *geminata*. The female specimens which I have seen, some of them coming from the same locality as the males, have black setulæ on the abdomen and rather wide black fasciæ; and the antennæ are twice not thrice as long as the body. Penn. and Tenn. (Aldrich), Wis. (Wheeler) and New York.

10. *Macrocera concinna* Williston.

1896. *concinna* Williston, Trans. Ent. Soc. London. 255.

Differs from *clara* only in having the three stripes on the thorax, a vertical stripe on the pleura, scutellum and metanotum, brown. It is more probably the same as *clara* and not *inconcinna* as Professor Williston has suggested. Recorded from St. Vincent Isl. W. I.

11. *Macrocera sp.*

A female specimen from Friday Harbor, Washington, taken in July by Professor Aldrich differs from *clara* in having shorter antennæ, but little longer than the insect; fore metatarsus a little over half as long as the tibia; and feebly indicated thoracic stripes. Venation and markings like *clara*.

12. *Macrocera geminata* n. sp.

Male. Length 4 mm. Head, face and mouth parts yellow; covering the ocelli a large brownish triangle the vertex of which extends onto the occiput; setæ of labrum and vertex black; antennæ about six mm. long, fuscous, the scape and the first flagellar joint except the base and the apex of each of the second, third and fourth joints more yellowish. Thorax shining yellow with shining brown markings as follows: the anterior margin of mesonotum with a large triangle, two broad stripes widening posteriorly and nearly meeting in front of the scutellum, a longitudinal dash behind the humeral callus

and extending nearly to the base of the wing, a large oval spot just below this, the ventral margin of the pleura just above the middle coxæ and the metanotum; the two longitudinal rows of fine setæ on the mesonotum mesad of the longitudinal stripes, two rows of larger setæ extending to the base of the wing, several pairs on the posterior margin, and a few less prominent ones on the scutellum, black. Abdomen yellow, the first segment pale brown, both dorsal and ventral sclerites of the other segments each with dark brown basal fascia about half the width of the segments anteriorly but wider on the posterior segments, the dorsal sclerites also with pale brown apical fasciæ; hypopygium brown (fig. 94) the two apical teeth far apart; setæ black. Coxæ and legs yellow, extreme apex of each femur and tibia, and the tarsi wholly infuscate; fore metatarsus two thirds, second foretarsal joint one-third as long as the tibia; tibial spurs about as long as the fourth tarsal joint; empodium distinct, bushy, claws simple. Wings hyaline with a brown, more or less broken zig-zag fascia which arises proximad of the apex of R_1, extends over the petiole of the media, produced slightly into its fork, narrows behind Cu_1 and reaches Cu_2 where it again slightly widens; a spot at the base of the media which may extend to the cubitus, another at the base of the cubitus, and the entire apex of the wing from the apical half of cell R_2+_3 to beyond Cu_1 with a very faint brown cloud, more conspicuous along the course of the veins; R_2+_3 very oblique and about as long as the petiole of the media; the distance from the tip of R_1 to R_2+_3 is about three-fourths as great as from R_2+_3 to R_4+_5. Halteres yellow.

Female. Like the male but the antennæ are a trifle shorter, the yellow of the dorsal sclerites of the abdomen is less extended and the apex of the wing is a little darker. All from Ithaca, New York; June.

LEG MEASUREMENTS.

The table which follows gives the relative lengths of the joints of the legs, the fore tibia being taken as 100. As the measurements were for the most part made upon pinned specimens the values given may not be absolutely exact, due in part to the difficulty experienced in getting the object to be measured in a true horizontal plane. A variation of as much as four or five percent. may be expected in different individuals of the same species, and the proportions in the male differ somewhat from those of the female.

Number of joint.	Fore leg.		Middle leg.		Hind leg.		Palæoplatyura aldrichii, male.		Palæoplatyura johnsoni, male.		Cerceptatus terminalis,		Cerceptatus militaris, male.		Cerception bellulus, male.		Apemon pectoralis, male.		Apemon nigriventris, male.		Apemon nigriventris, female		Platyura scapularis, male.		Platyura scapularis, female.		Platyura fascipennis var. sagax, male.		Platyura fascipennis female		Platyura inops male.		Platyura setiger male.		Platyura mimula, male.		Platyura nigrita, male.		Platyura moesta male.		Platyura mendosa male.		Platyura mendica female.		Platyura diluta, male.		Platyura moerens, male.		Platyura genualis, male.		Platyura elegantula, female.		Macrocera formosa var. indigena, male.		Macrocera clara, male.		Macrocera clara, female.		Macrocera geminata, male.		
F	78	100	85	100	90	100	118	165	104	174	109	150	129	189	90	100	118	145	96	100	82	100	96	100	88	100	79	100	–	100	71	100	91	100	84	100	87	100	85	100	–	100	70	100	74	97	80	100	75	100	85	100	88	100	84	100
T	100	114	100	117	100	142	118	138	109	150	100	145	90	145	100	116	100	145	100	134	100	134	100	142	100	125	100	122	100	151	100	140	100	140	100	142	100	134	100	142	100	108	100	116	100	97	100	97	100	77	100	71	100	67	100
1	70	74	–	74	–	111	–	91	–	111	–	111	–	111	–	82	–	82	–	74	–	74	–	74	–	80	–	80	–	71	–	71	–	71	–	71	–	71	–	71	–	71	–	71	–	71	–	71	–	71	–	71	–	71	–	71
2	–	–	–	–	–	83	–	–	–	48	–	52	–	60	–	54	–	57	–	33	–	33	–	34	–	67	–	68	–	71	–	44	–	43	–	42	–	44	–	44	–	44	–	44	–	42	–	39	–	40	–	41	–	39	–	40
3	–	–	–	–	–	40	–	–	–	33	–	35	–	38	–	37	–	35	–	29	–	33	–	26	–	52	–	66	–	50	–	33	–	41	–	39	–	34	–	49	–	49	–	52	–	39	–	41	–	39	–	41	–	39	–	41
4	–	–	–	–	–	31	–	–	–	22	–	26	–	24	–	30	–	22	–	19	–	22	–	17	–	42	–	38	–	30	–	25	–	33	–	24	–	31	–	38	–	36	–	33	–	23	–	26	–	28	–	33	–	28	–	28
5	–	–	–	–	–	22	–	–	–	18	–	22	–	18	–	22	–	16	–	16	–	17	–	14	–	34	–	23	–	22	–	18	–	29	–	25	–	30	–	30	–	25	–	24	–	25	–	24	–	24	–	23	–	24	–	24
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Explanation of Plates.

Plate. (Figs. 46 to 69 reduced from Plate 1 in Johannsen's Mycetophilidæ, Genera Insectorum).

Fig. 46. Head of Asindulum montanum.
" 47. Palpus of Ceroplatus.
" 48. Antenna of Ceroplatus.
" 49. Proboscis of Asidulum coxale.
" 50. Palpus of Exechia.
" 51. Antenna of Mycetophila.
" 52. Antenna of Cordyla.
" 53. Head of Gnoriste.
" 54. Palpus of Cordyla.
" 55. Ventral aspect of mouth parts of Mycetophila punctata.
" 56. Mycetophila punctata, female.
" 57. Tarsal claw of Mycetophila.
" 58. Tarsal claw of Ceroplatus.
" 59. Antenna of Diomonus.
" 60. Tibia and tarsus of Heteropterna (after Skuse).
" 61. Head of Hadroneura (after Lundström).
" 62. Hind tibia of Exechia.
" 63. Dorsal aspect of head of Mycomya (Sciophila Winnertz).
" 64. Proboscis and palpi of Arctoneura (=Cyrtoneura, after Marshall).
" 65. Dorsal aspect of head of Diomonus.
" 66. Antenna of Platyroptilon (after Westwood).
" 67. Dorsal aspect of head of Exechia.
" 68. Head of Lygistorrhina (after Skuse).
" 69. Frontal aspect of Leia (=Neoglaphyroptera Osten-Sacken).
" 70. Diagram of Palaeoplatyura wing.
" 71. " " Ditomyia wing.
" 72. " " Sciophilinæ wing.
" 73. " " Mycetophilinæ wing.

Explanation of Abbreviations.—C = Costa; Sc_1 and Sc_2 = anterior and posterior branches of the subcosta; R_1, R_{2+3}, and R_{4+5} = branches of the radius; Rs = radical sector = $R_{2+3}+R_{4+5}$; M_{1+2} and M_3 = branches of the media; Cu_1 and

Cu_2 = branches of the cubitus; A = anal veins; R-M = radio-medial crossvein; M-Cu = medio-cubital crossvein.

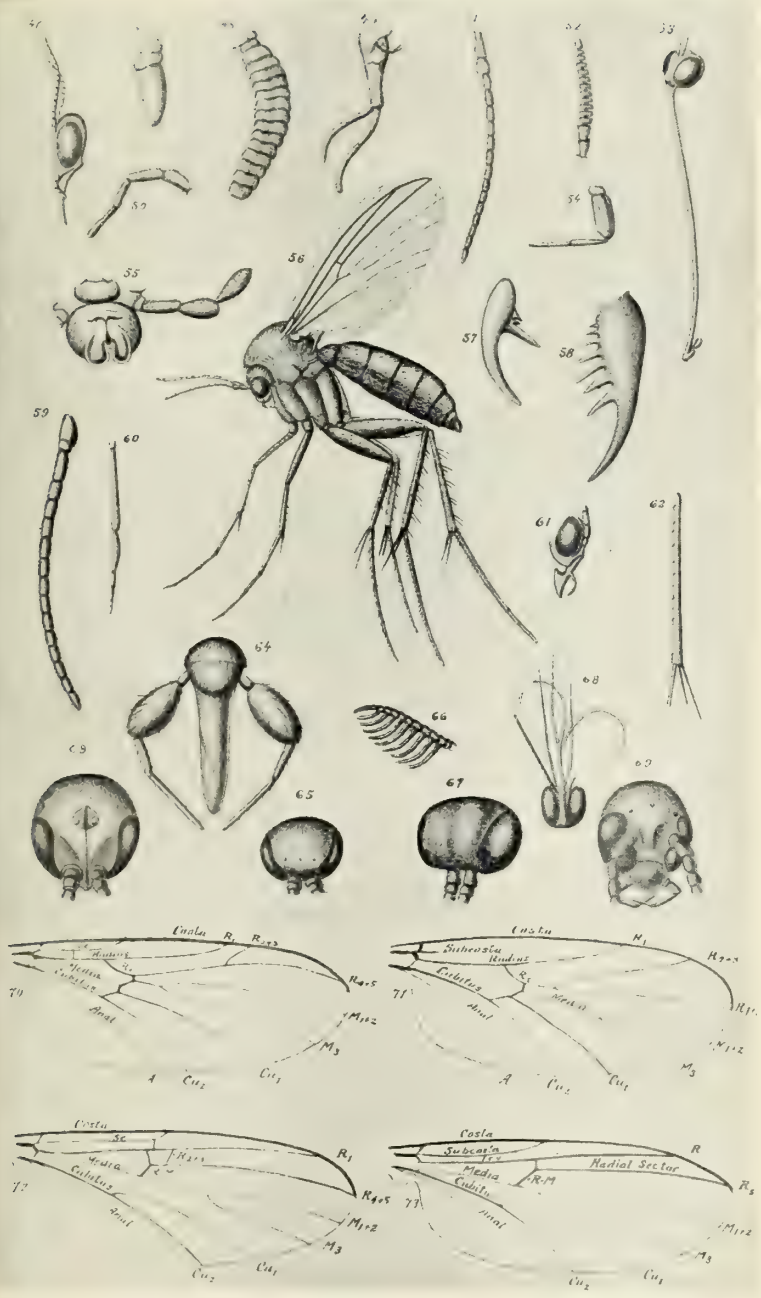
Plate.

Fig. 74. Hesperinus brevifrons.
" 75. Bolitophila cinerea.
" 76. " disjuncta.
" 77. Mycetobia divergens.
" 78. Palaeoplatyura johnsoni.
" 79. Mycetophaetus (after Scudder).
" 80. Ditomyia (after Winnertz).
" 81. Symmerus tristis.
" 82. Ceroplatus clausus.
" 83. Cerotelion bellulus.
" 84. Platyura moerens, male.
" 85. " parva.
" 86. " setiger.
" 87. Asindulum montanum.
" 88. Apemon pectoralis.
" 89. Hesperodes (diagrammatic).
" 90. Macrocera clara.
" 91. Diadocidia ferruginosa.

Plate.

Magnification 65 diameters.

Fig. 92. Platyura nigrita. Lateral aspect.
" 93. Macrocera formosa, var. indigena. Dorsal aspect.
" 94. " geminata. Dorsal aspect.
" 95. Platyura mendosa (female). Lateral aspect.
" 96. " moerens. Ventral aspect.
" 97. Apemon pectoralis. Dorsal aspect.
" 98. Platyura diluta. Ventral aspect.
" 99. " mendosa. Dorsal aspect.
" 100. " genualis. Ventral aspect.
" 101. " inops. Ventral aspect.
" 102. " fascipennis, var. sagax. Ventral aspect.
" 103. " setiger. Lateral aspect.
" 104. " subterminalis. Ventral aspect.
" 105. " scapularis. Ventral aspect.
" 106. " moesta. Ventral aspect.
" 107. " subterminalis, var. nexilis. Ventral aspect.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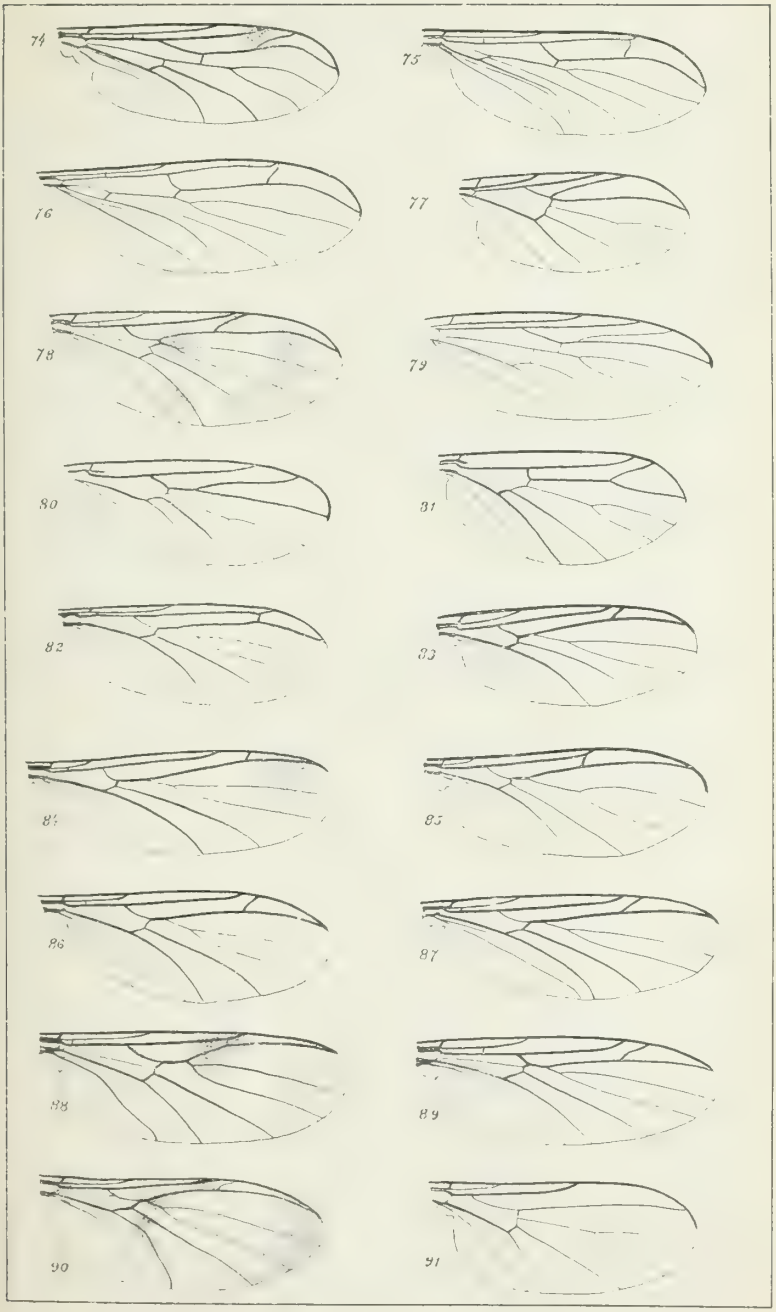
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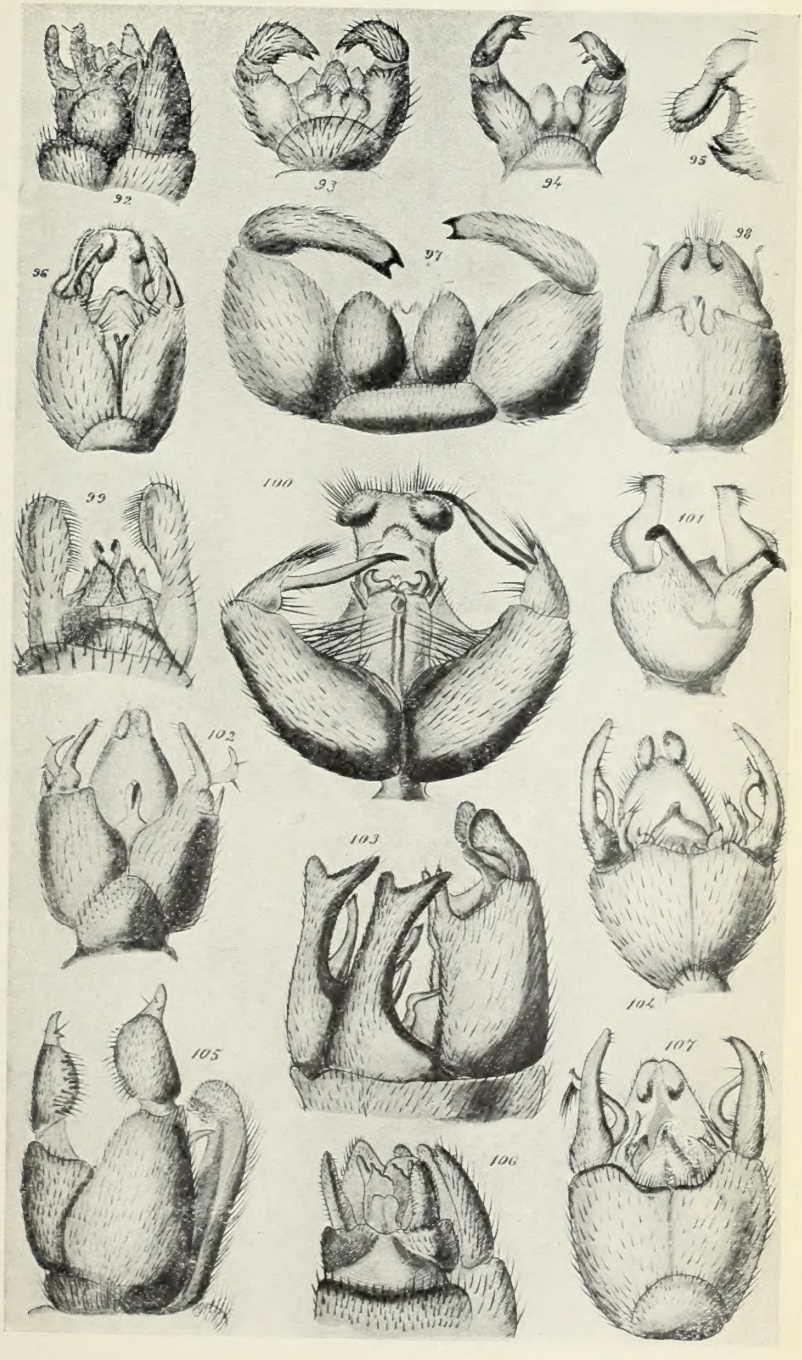
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